



Egyptian Knowledge Bank  
بنك المعرفة المصري



# INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

Primary Grade 4  
Term 1  
2021-2022

Teacher's Guide

# Introduction

تشهد وزارة التربية والتعليم والتعليم الفني مرحلة فارقة من تاريخ التعليم في مصر، فقد انطلقت إشارة البدء في التغيير الجذري لنظامنا التعليمي بدءاً من مرحلة رياض الأطفال حتى نهاية المرحلة الثانوية (التعليم 2.0). لتببدأ أول ملامح هذا التغيير من سبتمبر 2018 عبر تغيير مناهج مرحلة رياض الأطفال

والصف الأول تلتها الصفين الثاني والثالث الابتدائي. وفي 2021 بدأنا في تغيير منهج الصف الرابع الابتدائي وسنستمر في التغيير تباعاً للصفوف الدراسية التالية حتى عام 2030، إذ نعمل على إحداث نقلة نوعية في طريقة إعداد طلاب مصر ليكونوا شباباً ناجحين في مستقبل لا يمكننا التنبؤ بتفاصيله.

## كلمة السيد وزير التربية والتعليم والتعليم الفني

يسعدني أن أشارككم هذه اللحظة التاريخية في عمر مصرنا الحبيبة والتي تمثل استمراً لانطلاقه نظام التعليم المصري الجديد، والذي تم تصميمه لبناء إنسان مصرى منتمٍ إلى وطنه وإلى أمته العربية وقارته الإفريقية، مبتكر، ومبدع، يفهم ويقبل الاختلاف، ومتمكن من المعرفة والمهارات الحياتية، وقدر على التعلم مدى الحياة وقدر على المنافسة العالمية.

وتغدو وزارة التربية والتعليم والتعليم الفني بأن تقدم هذه السلسلة التعليمية الجديدة، فضلاً عن المواد التعليمية الرقمية التي تعكس رؤيتها عن رحلة التطوير. وقد كان هذا العمل نتاجاً لكثير من الدراسات والمقارنات والتفكير العميق والتعاون مع الكثير من علماء التربية في كل من المؤسسات الوطنية والعالمية لكي نصوغ رؤيتنا في إطار قومي إبداعي ومواد تعليمية ورقية ورقمية فعالة.

وتتقىد وزارة التربية والتعليم والتعليم الفني بكل الشكر والتقدير لمركز تطوير المناهج والمواد التعليمية ومديريه وفريقها الرائع على وجه التحديد، كما تتقىد بالشكر لمستشاري الوزير وكذلك مديرى عموم المواد الدراسية، وكذلك تخص بالشكر والعرفان مؤسسة ديسكفرى التعليمية، ومؤسسة ناشيونال جيوجرافيك للتعليم، ومؤسسة نهضة مصر، ومؤسسة لونجمان مصر، ومنظمة اليونيسف، ومنظمة اليونسكو، والبنك الدولى لمساهمتهم في تطوير إطار المناهج الوطنية بمصر، وكذلك أساتذة كليات التربية المصرية لمشاركتهم الفاعلة في إعداد إطار المناهج الوطنية في مصر. وأخيراً تتقىد الوزارة بالشكر لكل فرد في قطاعات وزارة التربية والتعليم الذين ساهموا في إثراء هذا العمل.

إن تغيير نظامنا التعليمي لم يكن ممكناً دون الإيمان العميق لدى القيادة السياسية المصرية بضرورة التغيير، فالإصلاح الشامل للتعليم في مصر هو جزء أصيل من رؤية السيد الرئيس عبد الفتاح السيسى لإعادة بناء المواطن المصرى. وقد تم تفعيل تلك الرؤية بالتنسيق الكامل مع السادة وزراء التعليم العالى والبحث العلمي، والثقافة، والشباب والرياضة. إن نظام التعليم (2.0) هو جزء من مجهود وطني كبير ومتواصل للارتقاء بمصر إلى مصاف الدول المتقدمة لضمان مستقبل عظيم لجميع مواطنها.

إن تحقيق الحلم المصري في التغيير مسئولية مشتركة بين مؤسسات الدولة أجمعها ، وأولياء الأمور والمجتمع المدنى والتعليم الخاص ووسائل الإعلام في مصر. وهنا أود أن أخص بالذكر السادة المعلمين الأجلاء الذين يمثلون القدوة والمثل العليا لأبنائنا، ويقومون بالعمل الدؤوب لإنجاح هذا المشروع القومى.

إنني أناشدكم جميعاً أن يعمل كل منا على أن يكون قدوة صالحة لأبنائنا، وأن نتعاون جميعاً لبناء إنسان مصرى قادر على استعادة الأمجاد المصرية وبناء الحضارة المصرية الجديدة.

خالص تمنياتي القلبية لأبنائنا بالتوفيق، واحترامي وتقديري لعلمي مصر الأجلاء.

الدكتور طارق جلال شوقي  
وزير التربية والتعليم والتعليم الفني

# Contents

<b>Theme 1</b>	<b>The role of ICT in our lives</b>	<b>37</b>	<b>Theme 2</b>	<b>Digital safety and security precautions</b>	<b>89</b>
	<b>Lesson 1</b> Explorer in Action	<b>38</b>		<b>Lesson 1</b> Explorer in Action	<b>90</b>
	<b>Lesson 2</b> The evolution of technology	<b>44</b>		<b>Lesson 2</b> Online dangers and how to be safe	<b>96</b>
	<b>Lesson 3</b> Components of computer systems	<b>50</b>		<b>Lesson 3</b> Using ICT tools in a healthy and ethical way	<b>102</b>
	<b>Lesson 4</b> Software and operating systems	<b>56</b>		<b>Lesson 4</b> How to search online	<b>108</b>
	<b>Lesson 5</b> Supporting people of determination	<b>62</b>		<b>Lesson 5</b> How to check whether information online is true	<b>114</b>
	<b>Lesson 6</b> Common ICT problems and solutions	<b>68</b>		<b>Lesson 6</b> Who can help you with online problems?	<b>120</b>
	<b>Lesson 7</b> Collecting, analyzing and graphing data	<b>74</b>		<b>Lesson 7</b> My personal digital safety plan	<b>126</b>
	<b>Lesson 8</b> Reporting findings	<b>80</b>		<b>Lesson 8</b> Practicing what you learned	<b>132</b>
	<b>Review</b>	<b>86</b>		<b>Review</b>	<b>138</b>
				<b>Projects</b>	<b>140</b>

# Scope and sequence



## THEME 1 The role of ICT in our lives

Essential Question: How can we use technology effectively?

LESSON	TOPICS	SKILLS INTEGRATION		
		Life Skills	Values	Issues and challenges
LESSON 1 Explorer in Action	<ul style="list-style-type: none"> <li>How archaeologists use ICT in their jobs and daily life</li> <li>Technology used to explore the earth</li> </ul>	Learning to know: critical thinking; problem solving	Academic values: appreciation of science and scientists	Issues of globalization: technological awareness
LESSON 2 The evolution of technology	<ul style="list-style-type: none"> <li>The history of ICT</li> <li>How technology is used in our daily life</li> <li>Practice of typing skills</li> </ul>	Learning to know: critical thinking; problem solving Learning to be: communication; self-management	Academic values: appreciation of science and scientists; curiosity	Issues of globalization: technological awareness
LESSON 3 Components of computer systems	<ul style="list-style-type: none"> <li>The main components of computer systems</li> <li>Input, output and data</li> <li>Different types of computer hardware</li> </ul>	Learning to do: collaboration Learning to know: creativity; problem solving	Academic values: perseverance	Issues of globalization: digital citizenship
LESSON 4 Software and operating systems	<ul style="list-style-type: none"> <li>Operating systems and software</li> <li>How a computer communicates</li> </ul>	Learning to be: communication Learning to know: creativity	Work values: collaboration	Issues of globalization: technological awareness
LESSON 5 Supporting people of determination	<ul style="list-style-type: none"> <li>Assistive technology</li> <li>How technology can improve the lives of people of determination</li> </ul>	Learning to know: creativity Learning to live together: empathy; respect for diversity	Co-existence values: respect; tolerance and acceptance	Non-discrimination issues: discrimination against people with special needs
LESSON 6 Common ICT problems and solutions	<ul style="list-style-type: none"> <li>Common ICT problems</li> <li>Solutions to common ICT problems</li> </ul>	Learning to know: creativity; problem solving		Issues of globalization: technological awareness
LESSON 7 Collecting, analyzing and graphing data	<ul style="list-style-type: none"> <li>Digital tools to organize data</li> <li>Collecting, analyzing and graphing data</li> </ul>	Learning to be: communication Learning to live together: participation	Academic values: objectivity	
LESSON 8 Reporting findings	<ul style="list-style-type: none"> <li>Different ways to communicate electronically</li> </ul>	Learning to be: communication Learning to know: creativity; critical thinking	Co-existence values: participation	Issues of globalization: entrepreneurship



## THEME 2 Digital safety and security precautions

Essential Question: How can you be safe and use reliable sources when online?

LESSON	TOPICS	SKILLS INTEGRATION		
		Life Skills	Values	Issues and challenges
LESSON 1 Explorer in Action	<ul style="list-style-type: none"> <li>How scientists use ICT in their jobs and daily life</li> <li>How technology can help to communicate information</li> </ul>	Learning to know: critical thinking; problem solving	Academic values: appreciation of science and scientists	Health and population issues: therapeutic health
LESSON 2 Online dangers and how to be safe	<ul style="list-style-type: none"> <li>Online risks and dangers</li> <li>The importance of keeping personal information private</li> <li>Staying safe online</li> </ul>	Learning to be: communication Learning to know: critical thinking	Personal values: independence	Citizenship issues: awareness of duties and rights
LESSON 3 Using ICT tools in a healthy and ethical way	<ul style="list-style-type: none"> <li>Posting online</li> <li>Crediting others</li> <li>Respecting the law</li> <li>The positive effects of ICT tools</li> </ul>	Learning to live together: respect for diversity Learning to be: accountability	Co-existence values: respect; tolerance and acceptance	Citizenship issues: legal awareness Non-discrimination issues: discrimination against people with special needs
LESSON 4 How to search online	<ul style="list-style-type: none"> <li>Safe online searches</li> <li>Choosing key words for an online search</li> </ul>	Learning to be: communication; self-management Learning to know: critical thinking	Personal values: independence	Issues of globalization: technological awareness
LESSON 5 How to check whether information online is true	<ul style="list-style-type: none"> <li>Reliable and unreliable online sources</li> <li>The Egyptian Knowledge Bank</li> </ul>	Learning to know: critical thinking	Academic values: curiosity; objectivity	Issues of globalization: digital citizenship
LESSON 6 Who can help you with online problems?	<ul style="list-style-type: none"> <li>Online bullying and inappropriate content</li> <li>What to do about online problems</li> </ul>	Learning to do: decision-making Learning to live together: empathy		Citizenship issues: legal awareness Issues of globalization: digital citizenship
LESSON 7 My personal digital safety plan	<ul style="list-style-type: none"> <li>Identifying and creating strong passwords</li> <li>The importance of good anti-virus software</li> <li>Protecting devices from possible online dangers</li> </ul>	Learning to know: creativity; critical thinking	Academic values: objectivity	Issues of globalization: technological awareness
LESSON 8 Practicing what you learned	<ul style="list-style-type: none"> <li>Researching and presenting a topic safely and effectively</li> </ul>	Learning to do: collaboration	Co-existence values: participation Personal values: independence	Issues of globalization: technological awareness

*Information and Communication Technology (ICT)* teaches the Egypt Ministry of Education curriculum for Primary 4 learners. Through thought-provoking stories, photography and video, *ICT* profiles experts in technology as role models for students to emulate. *ICT* lessons and concepts help students learn to use technology for success in life.

## Components

The course comprises these elements:

- A combined Student Book and Activity Book
- An e-book
- A Teacher's Guide with educational tasks, exercises and teaching procedures
- Downloadable worksheets
- Videos

## The Aims of the Course

This course provides Grade 4 students with the skills they will need to use digital technology safely and effectively. Filled with practical, relevant content, this course helps students learn and put into practice higher-order thinking skills including critical thinking, communication, creativity, teamwork, leadership, and self-awareness. By developing higher-order thinking skills as well as learning how to become strong life-long learners, students will be well-prepared for their own future and to become productive members of society.

## Course Structure

The course is divided broadly into four **themes** over the academic year, with each term covering two themes. Each theme addresses a broad concept from the Ministry of Education curriculum.

### Each theme is subdivided into **lessons**.

Each lesson consists of 2 two-page spreads, which cover 45 minutes of class time and includes both instruction and exercises and concludes with a review and a self-assessment.

## TERM I

### Theme 1: The role of ICT in our lives (8 lessons)

Students learn about the evolution of technology, the basic components of computer systems and how technology can help people of determination. They discuss how explorers and archaeologists use technology to collect and analyze information, and report their findings.

There is also an opportunity to develop basic typing skills. Additional core skills include respect for diversity, empathy, and problem-solving.

### Theme 2: Digital safety and security precautions (8 lessons)

As the internet becomes more integrated into our daily lives, it is important for young people to learn to use it effectively. In this theme, students learn about how to use the internet safely and responsibly, and how to find and check reliable sources online. They also develop a personal digital safety plan.

## THE FEATURES OF THE COURSE

- Each theme provides the following:

**Theme Opener:** Each theme opens with an engaging visual image to introduce the theme and to capture students' interest. Theme openers also feature the Essential Question.

**The Essential Question:** This is a broad inquiry into the theme to raise students' interest. Each lesson studied will provide further insight into this question. Students will return to the Essential Question in the Theme Review.

**Theme Reviews:** Each theme concludes with a two-page review to help students summarize and apply the most important information and skills presented throughout the theme. The Review at the end of a theme also enables students to answer the Essential Question which was first asked on the Theme Opener page.

**Projects:** At the end of each term, students work collaboratively on a project related to the theme, through which they can apply the personal skills they acquired to the academic content. The projects allow students to engage their creativity and apply the material in a personally meaningful and relevant way.

**Explorer in Action:** At the beginning of each theme, students are introduced to a famous professional, so students can study a concrete example of an influential role model. These lessons also include a video featuring the explorer, describing their work in their own words.

**Videos:** The Explorer in Action lessons feature engaging videos.

- Each lesson provides the following:

**Objectives:** At the start of each lesson, students see what they will learn.

**Engage:** This is a broad question to introduce students to the lesson topic.

**Learn:** Information is presented through texts.

**Explore:** This enables students to discuss the lesson topic further or do a short task related to the content.

**Review (for part 1 of the lesson):** These contain three questions. They relate to the lesson objectives, the life skills, values or issues and challenges in the lesson (see below) or a personalization question, so enabling students to relate the lesson contents to their own lives.

**Learn by Doing:** Students apply the information they just learned in a practical way, such as carrying out a task or completing a graphic organizer.

**Review (for part 2 of the lesson):** Students summarize and consolidate the information from the lesson. These are two questions.

**Self-assess:** At the end of the lesson, students check their progress against the Lesson Objectives.

**Life skills, Values, and Issues and Challenges:** Skills in these areas are integrated into each lesson, and are clearly marked in the Table of Contents and in the Teacher's Guide.

# Creating an inclusive classroom

Education, in the age of information and teaching technologies, supports the learner's particular needs and takes into consideration his knowledge background and his personal abilities. The main mission of teaching special needs students now is to teach them how to learn and adapt to their society and face their lives. That's the reason behind our interest in developing a Teacher's Guide that aims to:

- support the teachers in teaching students with minor disabilities integrated in regular schools;
- provide high quality education for everyone without discrimination;
- achieve a general development of learners in regards to their physical, mental and emotional health, as much as their abilities and capacities allow it, in addition to giving them the right amount of essential knowledge;
- create a supportive and motivating educational environment, which helps integrated SEND students fit into society inside and outside the school.

ICT is considered one of the factors that help provide equal opportunities for disabled children, strengthen educational and social integration, adjust to the requirements of the era, stay up to date with the digital age, give the students the professional and technological skills required by employment opportunities, and develop in them the abilities needed in the labor market and entrepreneurship.

## What the teachers should know to integrate differentiated learners... Educational characteristics and needs:

ICT is considered very important for those with disabilities because it allows them to fully engage in the social and economical life of their societies. Steps have been taken towards enhancing their quality of life, through enabling them and helping them gain independence.

Here are the educational characteristics and needs of these categories:

Learners	Characteristics	General educational needs
Visual impairment: blind and weak sighted	<ul style="list-style-type: none"> <li>- Normal IQ level, strong sensory memory, lesser imaginative ability, difficulty in forming concepts like distance and colors.</li> <li>- Deficiency in using gestures, facial expressions and body language.</li> </ul>	<ul style="list-style-type: none"> <li>- Converting written text to audio, writing assignments and text in Braille, and answering orally for the blind.</li> <li>- Using screen reader software.</li> <li>- Describing pictures orally for the blind and displaying them zoomed and without details for the weak sighted.</li> </ul>
Hearing impairment	<ul style="list-style-type: none"> <li>- Problems in understanding 50% of class discussions if they didn't have the opportunity to follow it visually.</li> <li>- Vocabulary deficiency and problems with expressive language.</li> <li>- Difficulty with oral learning, in linking sounds with their corresponding written signs, and also in learning linguistic concepts.</li> <li>- Capacity of abstract learning and thinking is not affected if information is presented with visual language.</li> <li>- Weak ability to focus and difficulty remembering information unless it is presented through visual education.</li> </ul>	<ul style="list-style-type: none"> <li>- Reviewing prior knowledge when presenting ICT concepts and linking them to new concepts, real-life images and simple examples from students' environments.</li> <li>- Assigning tasks and using the demonstration strategy to explain the activities and present them practically.</li> <li>- Repeating the way to use lists and software tools more than once, and not moving on to the next step before making sure they mastered the one before it.</li> <li>- Adding visual elements to the visual content like arrows, circles, colored words and giving more time, in collaboration with the resource room teacher, so it becomes more flexible and able to meet the needs of hearing impaired students.</li> <li>- Speaking while facing the learner so that he can read lips, especially when introducing new vocabulary.</li> </ul>
Intellectual disability	<ul style="list-style-type: none"> <li>- Attention deficit, weak focus, difficulty retaining information and recalling it when needed, specifically short term memory which is related to school learning.</li> <li>- Tendency to depend on others and a lack of independence and enthusiasm towards achieving given tasks.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyzing and dividing tasks, focus on sensory activities, and do them from easiest to hardest.</li> <li>- Giving clear and specific instructions, and enough time to finish tasks.</li> <li>- Avoiding learners failing whenever it's possible, instead they should be given tasks they succeed at first, so they would keep doing the assigned tasks and feel successful.</li> </ul>

	<ul style="list-style-type: none"> <li>- Difficulty transferring experience or knowledge from one situation to another.</li> <li>- Clear deficiency in the use of language, speech, pronunciation of letters and words, along with using simple words and sentences, and limited vocabulary.</li> </ul>	<ul style="list-style-type: none"> <li>- Repeating the way to use lists and software tools more than once, and not moving on to the next step before making sure they mastered the one before it.</li> <li>- Using the demonstration strategy to explain the activities and present them practically.</li> <li>- Focus on the vocabulary either by writing them on the board or highlighting them in the student book.</li> <li>- Preparing visual representations such as mind maps when presenting some subjects that require it, to make understanding them easier. This can include adding links to websites.</li> </ul>
Motor disability and cerebral palsy	<ul style="list-style-type: none"> <li>- Inability to achieve the task given in one go.</li> <li>- Difficulties with language, unclear pronunciation to the point where others are unable to understand it. The reason is a very weak control over the muscles of the tongue, lips, throat and facial expressions.</li> <li>- Suffering from anxiety, shyness, isolation, lack of self-confidence, and lack of social interaction.</li> </ul>	<ul style="list-style-type: none"> <li>- Including them in groups and giving them tasks according to their disabilities.</li> <li>- Giving less homework and class assignments, and giving them enough time to finish their tasks.</li> <li>- Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible.</li> </ul>
Autism	<ul style="list-style-type: none"> <li>- Deficit in attention, memory and enthusiasm</li> <li>- Difficulty in transitioning from one subject to another while being highly selective. Hints are needed to help them remember and recall.</li> <li>- Ability to remember visual information is better than their ability to remember audio information. Weak listening and speaking skills.</li> <li>- Overreacting to noise, annoyance from bright light, difficulty distinguishing between shape and background in pictures, reluctance to touch.</li> </ul>	<ul style="list-style-type: none"> <li>- Explaining the activity before starting.</li> <li>- Avoiding asking them to look and listen at the same time, because of their inability to process information inputted via sight and hearing at the same time. Making sure they are paying attention.</li> <li>- Focusing on sensory activities and using pictures while teaching: illustrated activity tables instead of language or words; the teacher speaking to them using short sentences focusing on key words which she/he pronounces loudly and places at the end of the sentence.</li> </ul>
Attention deficit disorder	<ul style="list-style-type: none"> <li>- Deficit in attention, focus and memory.</li> <li>- Difficulty organizing and finishing the tasks assigned to them.</li> <li>- Constant movement: tendency to climb, swing and walk around.</li> <li>- Some find it difficult to make friends, to play with their friends or to take part in their friends' calm activities.</li> <li>- Difficulty with adaptive behavior and life skills.</li> </ul>	<ul style="list-style-type: none"> <li>- Making sure they understood the instructions correctly.</li> <li>- Using activities and instructional materials that draw their attention.</li> <li>- Relying on instructional games and dividing tasks into less complicated sections.</li> <li>- Rewarding the learner for every step he does correctly.</li> <li>- Seating them in specific places, using appropriate reinforcements to delimit their movement in class</li> <li>- Presenting a daily activity plan prepared by the teacher and repeated to students.</li> </ul>
Learning disability	<ul style="list-style-type: none"> <li>- Difficulty paying attention, focusing, memorizing, forming concepts</li> <li>- Difficulty with literal and visual perception, short term memory.</li> <li>- Difficulty understanding what they hear and linking vocabulary to behavior, differentiating between similar words, following oral instructions, choosing the words that express their ideas and remembering them.</li> <li>- Constant movement, rapid emotional outbursts or indifference with no desire to participate in class.</li> </ul>	<ul style="list-style-type: none"> <li>- Using short sentences and the most common words, changing tone of voice and preparing students before and after reading the text, in addition to using computers to encourage them to write.</li> <li>- Taking into consideration spaces between words and correcting typing mistakes.</li> </ul>

## Solutions to deal with SEND students

	<b>Supporting written and audio texts</b>	<ul style="list-style-type: none"> <li>- Support your computer with a screen reader program for the blind.</li> <li>- Allow blind students to listen to the lesson through computer audio as a way to help in the multimedia room.</li> <li>- Determine key words in the lesson (like block, download files, spam messages, etc.) and write them on the board or underline them or draw a box around them in the Student's Book for those with an intellectual disability, autism and hearing impairment.</li> <li>- Prepare a mind map about website links (.org, .edu, .gov, .com) to simplify their explanation for integrated SEND students</li> <li>- Write the main ideas and concepts on the board to give integrated students enough assimilation time during the lesson.</li> <li>- Take the following into consideration for written and audio texts: <ul style="list-style-type: none"> <li>• dividing the texts into smaller paragraphs.</li> <li>• focusing on main ideas.</li> <li>• summarizing the text while still keeping the main ideas.</li> </ul> </li> </ul>	<b>Supporting groups</b>	<ul style="list-style-type: none"> <li>- Divide blind students into big and small groups and let them know that, then ask them oral questions.</li> <li>- Place one integrated SEND student per group for Share activities.</li> <li>- Support students with motor disability and cerebral palsy by asking their classmates to help them write.</li> <li>- Raise the awareness of the class about the needs of their integrated SEND classmates to avoid negative reactions that will obstruct the learning procedure during the application of the activity (Test a partner).</li> </ul>	
	<b>Supporting multimedia</b>	<b>Photos and illustrations</b>	<ul style="list-style-type: none"> <li>- Describe the pictures for the blind and zoom in on them for the weak sighted.</li> <li>- Describe the illustrations for the blind.</li> <li>- Use photos to express words that don't exist in the surrounding environment if possible or give a simple example for integrated SEND students.</li> <li>- Make a model of a graphic organizer on a felt board and display data on it.</li> <li>- Support visual representation methods for technological subjects and concepts (such as PowerPoint presentations, videos, posters, etc.), with pictures and written expressions for the hearing impaired, intellectually disabled, and autistic students.</li> </ul>	<b>Supporting digital safety</b>	<ul style="list-style-type: none"> <li>- Determine ways of preserving safety measures while using the internet and write them on the board in concise, organized and short sentences, or put them into a mind map for integrated SEND students.</li> <li>- Make a table that includes the positive and negative impacts of ICT tools using short, simple and specific sentences.</li> <li>- Present the lesson by letting integrated SEND students act it like a play to better clarify the idea of bullying.</li> <li>- Summarize the ethics of using ICT tools by identifying main sentences and ideas.</li> <li>- Take into consideration the possibility of integrated SEND students being bullied and encourage them to face that without fear or hesitation and to discuss what happened with others.</li> </ul>
	<b>Videos</b>	<ul style="list-style-type: none"> <li>- Play the videos about the scientists (Albert Lin and Anika Ullah) in each unit accordingly, by sectioning each of them and playing one section at a time, commenting on it and deducing its main idea, then move on to the rest of the sections and do the same.</li> <li>- Describe the content of the videos to the blind, taking the following into consideration: <ul style="list-style-type: none"> <li>• giving your comments after each video in a simple way.</li> <li>• making sure integrated SEND students get the idea.</li> <li>• summarizing the videos when finished and reviewing their ideas.</li> <li>• facing hearing impaired students while commenting on the videos.</li> </ul> </li> </ul>			

# Theme Opener

Following the curriculum, the content of the course is divided to match the four themes of the course across the year.



A short caption explains what students can see in the photograph. Further information is provided in the Teacher's Guide where applicable to aid class discussion.

Every theme focuses on a National Geographic Explorer, and examines how they use ICT in their lives. Each Explorer is chosen to link to the theme of the theme and to provide a practical example of ICT in action.

# Lesson Walkthrough

The format of each lesson follows an Engage, Learn, Explore, Review and Self-assess format. It opens with relevant lesson objectives.

The first lesson of every theme is an Explorer in Action lesson. This allows students to learn more about a National Geographic Explorer and their work.

A clear lesson heading is provided along with a lesson title.

This box ties in the objectives of the lesson whilst also asking students to come back at the end of the lesson for self-assessment. The teacher can easily follow up on any students who might be having difficulties whilst also giving extra challenges to advanced learners.

An Engage question opens each lesson. Using the photograph as a stimulus, the teacher can lead a focused and interesting class discussion.

The Teacher's Guide also provides suggested aims for each Engage question, which links to the curriculum.

## LESSON I EXPLORER IN ACTION

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Identify some technology used to explore the Earth.  Very well  OK  Need more work
- Explain the different terms for technology.  Very well  OK  Need more work
- Describe how technology can be used to search for things under the ground.  Very well  OK  Need more work

### Engage

What different kinds of technology can be used to explore the Earth? What do people wish to find when they explore? What do archaeologists wish to find when they are exploring?

### Learn

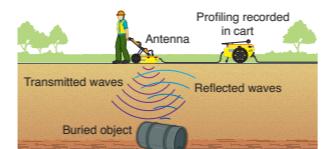
Albert Lin is an archaeologist. He uses different tools to explore archaeological sites without digging. These tools are useful because sometimes archaeologists cannot dig. This can save time, cost and effort. Other times, archaeologists may not know where to dig. They may need to do a survey above ground. They can use this survey to decide on which places to research.

There are many tools which Albert Lin can use. He can use photographs from satellites and drones. To find an object, he can use GPS. Once he finds something, he can search under the ground. To do this, he can use magnetometers and ground penetrating radar.



The Learn stage of the lesson is often a text which students read. The length of the text is suitable for the students' age and potential for conceptual understanding. The Explorer's story offers an example of the theme. In this theme about ICT in our lives, the archaeologist Albert Lin is introduced along with the various different tools he makes use of in his work.

Here are some tools archaeologists use to explore the earth:



Ground penetrating radar  
This radar can discover objects buried underground.



Global positioning system (GPS)  
This is a way to find the location of something using satellites.



Magnetometer  
This measures a magnetic field. It can find metal underground

### Video

Watch the video about Albert Lin exploring Tikal city. What tools did he use? How did they let him see what was hidden by trees?

### Explore

You don't have to be a scientist, engineer, archaeologist, or even a grown-up, to use technology! Research different technology by searching online and talking to your teacher, family or friends. What kind of technology would you use to help you explore an area? Explain why you chose it and how you would use it to help you to explore.

### Review

- What technological tools can archaeologists use on their expeditions?
- Can you think of some examples of things these technological tools could be used to find?

### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can ...** box.

II

This section of the lesson allows for active self-assessment. Teachers ask students to go back to the objectives at the beginning of the lesson and check what they can and can't do.

Concepts that may be unfamiliar are introduced with simple explanations and images to aid understanding.

Each Explorer in Action lesson includes a video which introduces the Explorer and their work.

The Explore section of the lesson is a follow-up task which enables active learning and encourages critical and higher-order thinking.

The Review section of the lesson enables students to check their understanding of the main principles of the lesson. This can include critical thinking or further engagement with the life skills or values in the lesson.

# Lesson Walkthrough

A 'Learn by doing' spread follows the main content for each lesson. The aim of these pages is to further expand upon and check students' understanding of the material.

The heading shows a clear, identifiable link with the preceding part of the lesson.

**Life skills** is one of the main three pillars of the curriculum. The question here further develops the topic from the Learn section of the lesson.

Students are regularly asked to present their work according to their own vision, in charts and graphic organizers. This encourages them to work methodically and to think about the best way to present information.

## LESSON 1 EXPLORER IN ACTION

### Life skills

#### 1 Read and answer

In your opinion, what are the most important skills for an engineer? In your opinion, what are the most important skills for an archaeologist?

### Graphic organizer

#### 2 Read and complete

Which tools help archaeologists locate things above the ground? Which tools help archaeologists locate things below the ground?

GPS ground penetrating radar magnetometer



12

The 'Learn by doing' spreads feature a variety of headings, including *Comprehension, Critical thinking, Graphic organizer, ICT and me, Research, Life skills, Values, and Issues and challenges*.

### Critical thinking

#### 3 Think and answer

Read the scenarios below. Decide which tools from Exercise 2 could be used for each scenario.

1. You want to see if there are any old coins buried underground.

2. You receive a message from a friend who is lost and you want to try to find them.

3. You want to find out if there are any old buildings under the ground.

#### 4 Discuss in pairs

1. Mr. Lin uses his engineering experiences in his archaeological work. Think of other subjects or backgrounds which might be useful for an archaeologist.

2. Technology has become very advanced in the last fifty years. Think about the next fifty years. What changes do you think we will see in technology? How might they help archaeologists?

#### 5 Think and answer

Imagine you are planning an archaeological expedition to find the remains of a city buried in the desert. Write a short paragraph to explain what technology you will use for your expedition and how you will use it. *For our archaeological expedition, we will need to use ...*

A *Critical thinking* section encourages students to think more deeply about the topic and how it relates to our lives. It includes both factual and imaginative tasks which encourage creativity.

13

# How to Teach the Stages of a Lesson

Each lesson includes the same sections, so a consistent approach can be applied. Each section can be taught by following one of several **routines**—consistent sequences that follow the same steps each time. This way, teachers cover the material, and students will know what to expect. However, there is room for a teacher's creativity as well, and there are supporting suggestions in the Teacher's Guide.

**Theme Opener pages:** Use the photograph on the opening spread to elicit ideas and background knowledge about the theme from students. Ask the Essential Question on this page to direct their attention to the material they will be studying.

**Lesson Objectives:** To make sure students know what they will be covering in the lesson, point out the specific goals of each lesson. Have students first reflect on what they already know; this will help them see their progress by the end of the lesson. This section is revisited at the end of the lesson for the Review. Use the routines **Time to Explore!**, **What Do I Need To Do?**, or **Understanding Objectives** to guide students through this section.

**Engage:** To introduce students to the lesson topic and raise their interest, use the questions in this section to help students activate their background schema. This helps prepare them for the reading to follow. Use the routines **Think-Pair-Share**, or **Photo Detectives!** to guide students through this section.

**Learn:** Use the reading in this section to present new information about the lesson topic. Students will not only learn content but also improve their reading and critical thinking skills. Use the routines **Preview**, **K-W-L Chart**, **Taking Notes**, **Mind-Mapping**, **Popcorn Reading**, or **Buddy Reading** to guide students through this section.

**Explorer in Action:** These sections feature real people. It is easier for students to understand what professionals do in their careers if they have specific contemporary examples. Students both read and watch videos to learn about their lives and contributions. You can bring in additional information about these people, or you may choose to talk about other well-known Egyptians in the same field as further examples.

**Videos:** The videos in the Explorer in Action sections provide students with a variety of input. Students often find video motivating and captivating. However, the videos are optional, so if your classroom context does not allow for this type of media, you can still cover all of the necessary material. In this case, you might wish to bring in additional images from books or the internet so that students do not feel they are missing anything. For videos, use the routine **Preview**, **View**, **Review**.

**Explore:** In this section, ask follow-up questions to help students apply the information they just learned to their own lives and contexts. This is a good opportunity to showcase the diversity in students' lives and opinions. Use the routines **Time for a Discussion!**, **Brainstorm**, or **The 2 to 4 Discussion** to guide students through this section.

**Review:** To wrap up the lesson and check comprehension, use this section to enable students to consolidate the lesson information and identify key ideas. If students have trouble with any of the tasks or questions in this section, clear up any misunderstandings or questions before moving on to the next lesson. Use the routines **Test a partner** or **Family Test** to guide students through this section.

**Self-assess:** Use this section for students to evaluate their own understanding and progress. Direct their attention back to the lesson objectives, and have them complete the checkbox. If any students still feel they need more work, either spend more time as a class on this section or help the students individually. Use the routines **3-2-1**, or **Promise!** to guide students through this section.

**Learn by Doing:** Give students the opportunity to engage with the lesson content through practical application. This is the perfect time to encourage creativity and to let students include art in their academic work.

**Theme Reviews:** These sections give students the chance to see their own progress in the course. Ask students to reflect over the entire theme and recall the most essential information. This is an excellent place for pair and group work, so students can help each other. Give them time to ask you any necessary questions.

**Projects:** In the projects, students work collaboratively in groups to apply the lesson topic to their own lives in a creative, meaningful way. This is a perfect time to encourage self-expression. Read through these sections in advance at the beginning of the week to plan how you will time the projects and to see if any students would have challenges outside of the classroom. Knowing these issues in advance will make them easier to solve. Don't be afraid to adapt the assignments to meet individual students' circumstances if necessary.

# How to Teach the Course

Each lesson in the Teacher's Guide starts with a list of the Objectives for the lesson, Life skills, Values, and Issues and Challenges that are included within the tasks and topics. There is also a handy list of materials that are needed to teach the lesson.

Every section of the Teacher's Guide has comprehensive notes under the same headings as in the Student's Book.

For every task, a timeframe is suggested so you can pace the lesson correctly.

**LESSON 2** pp. 14–15

## The evolution of technology

**OBJECTIVES**

- Discuss the history of ICT.
- Discuss how technology is used in our daily life.
- Improve my typing speed.

**LIFE SKILLS**

- Learning to know: critical thinking; problem solving
- Learning to be: communication; self-management

**VALUES**

- Academic values: appreciation of science and scientists; curiosity

**ISSUES AND CHALLENGES**

- Issues of globalization: technological awareness

**MATERIALS NEEDED**

- A picture of the Rosetta Stone (Be the Expert)
- Pictures of hieroglyphs, a book, a dial up telephone, a tablet or laptop (Teaching Tip)

**OBJECTIVES**

**AIM:** To encourage students to take responsibility for their own learning needs and paths and think about what they already know about technology.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, brainstorm different ways we use technology in our everyday lives, then have students rank these in order of importance.

- Follow the steps for **Routine 2: What Do I Need to Do?**
- Draw students' attention to the Lesson topic. **Say This lesson we're going to learn about the evolution of technology.** (See the Lesson Plan.)
- Read the objectives aloud to the class.

**44 LESSON 2**

**LESSON 2** The evolution of technology

**Objectives**

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

Discuss the history of ICT.	Very well	OK	Need more work
Discuss how technology is used in our daily life.	Very well	OK	Need more work
Improve my typing speed.	Very well	OK	Need more work

**Engage**

What are some ways you can record information? What is your favorite way of communicating with others?

**Learn**

Technology has certainly come a long way! Look at the timeline and read about what happened in each age of technology.

**3000 BCE–1450 CE**

The Pre-mechanical Age: During this age, people started to communicate through pictures like hieroglyphs and later by words and numbers. People would seal lots of information about agreements made. These documents are key to understanding history. Many of them are now available online, such as on the Egyptian Knowledge Bank.

**1450–1840**

The Mechanical Age: During this age, people recorded a tremendous amount of information. This led to a desire to make it easier to record and share. There was a technology explosion! One invention was a printing process which made it easier to make books and another was the Pascaline which was an early calculator.

**14**

**OPTIONAL:** Ask **Which objectives can you already do?** Elicit some ideas.

**3.** Ask **What kind of things will we need to pay attention to during the theme?**

**4.** Elicit ideas from the students, e.g., **I need to pay attention to dates and times!** (See suggested answers in the Lesson Plan.)

**5.** Write students' ideas on the board and remind students to pay attention to them during the lesson.

**(Suggested answers: I need to pay attention to... times and dates, the types of technology mentioned, how I can improve my typing speed!)**

**6.** **Say By the end of the lesson, you'll be able to do all these things!**

**Teaching support for an integrated classroom**

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Writing concepts and essential vocabulary on the board (Pre-mechanical Age, Mechanical Age, Electro-Mechanical Age, Electronic Age) along with their dates in a different color for each age or in a box.	- Supporting students by asking their classmates to help them write.	- Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible.	- Summarizing the part regarding the ages in a way that keeps the information about the dates and the inventions of each age.	- Including them in groups and giving them tasks according to their disabilities.	- Describing pictures for the blind and displaying them zoomed for the weak sighted.

**45**

The aim of each activity is explained, making it easy to see at a glance how the task builds students' knowledge and skills.

Suggested language for you, the teacher, is set in blue so that it is easy to find and follow.

Answers are set in orange text so that they can be referred to easily.

# How to Teach the Course

In every lesson, there is a BE THE EXPERT section. Use the additional information to provide background about the subject to the students.

Each lesson also has a teaching tip specific to the lesson. This can be an idea for classroom management or an additional activity.

**BE THE EXPERT**

The Rosetta Stone is a stone with writing carved into it. French soldiers found it in Egypt in 1799. It helped people understand the Ancient Egyptian writing system called hieroglyphics and translate Ancient Egyptian writing. The stone is named after the city where it was found, Rosetta. Today, that city is called 'Rashid' and the stone is now in the British Museum in London. It had three pieces of writing on it that said the same thing in three different languages: Ancient Egyptian script called demotic (the local language of the people in Egypt at that time), hieroglyphics and Ancient Greek.

**TEACHING TIP**

To test students' understanding of the technological ages explored in this lesson, cut up cards with the images of items mentioned in the text, for example hieroglyphs, a book, a dial up telephone, a tablet or laptop. Ask students to place these items in order of the age they belong to.

**HOME-SCHOOL CONNECTION**

**Life skill:** Learning to be: communication; self-management

Ask students to show their families and friends a picture of hieroglyphs, a book, a dial-up telephone, a tablet or laptop. Students ask them what they know about these things and which came first. Then, they can share what they have learned in this lesson about the ages of technology.

**1840-1940**

The Electro-Mechanical Age: This was the beginning of communication as we know it today. During this age, electricity was first used. This allowed many new types of inventions such as the telephone. The first digital computer was also produced. It was 8 feet high, 50 feet long, 2 feet wide, and weighed 50 tons!



**1940-present**

The Electronic Age: This is considered the Information explosion age. Inventions and improvements are happening at a staggering pace. A key advancement in this age are personal computers or laptops. Satellites and GPS are also important. They help us locate things and communicate with people around the world instantly using email and instant messages.



**Explore**

The average 10-year-old can type between 30 and 40 words per minute. Type a paragraph from this page. How many words can you type per minute? Practice and see if you can improve!

**Review**

1. Look at the timeline and the pictures. What are the different ways technology has helped people communicate?
2. How do you use technology in your school, your home, and your community?

**Self-assess**

Go to the Objectives at the beginning of the lesson. Check the correct **I can...** box.

15

The Home-School Connection offers an idea for students to share their work with family and friends. This is a great way to show parents and carers what students are studying in class and to involve them in their child's learning.

The Routine which the notes suggest for each activity is clearly named, so that they can be found and consulted on the Routines list. If it is the first time that a Routine is suggested, it is fully explained.

## EXPLORE

**AIM:** To learn about typing speeds and assess how many words students can type per minute.

**TIME:** 5-10 minutes

- Introduce the topic. Say **Now we're going to think about our typing speed.**
- Follow the steps for Routine 14: **The 2 to 4 Discussion.**

1. Introduce the Explore topic. Read the question aloud. Ask them to guess how many words they can type per minute. They will check their typing speed later in the lesson. Ask them to think of ways they can improve their typing speed.
2. Say **Sit with a classmate, shoulder to shoulder. Discuss the question together.** Students discuss the question in pairs.

3. Say **Now join another pair and form a group of four. Sit knee to knee and share your ideas.** Students discuss the question again, this time as a group of four.

4. Go around the classroom and listen to the pairs/groups while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
5. Elicit some answers from the class. (See the Lesson Plan).

**OPTIONAL:** Introduce more critical thinking by asking students why it is important to have a fast typing speed.

## LIFE SKILLS

Praise some or all students for thinking critically. Explain that they will use this skill during the lesson.

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5-10 minutes

- Follow the steps for **Routine 15: Test a partner.**

**OPTIONAL:** Ask students to recreate the timeline of the ages of technology without looking at their books. Ask students to name some technological inventions that belong to each age.

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; encourage critical thinking.

**TIME:** to be completed at home

1. Follow the steps for **Routine 17: 3-2-1**
2. Draw students' attention to Self-Assessment. Read the first instruction aloud and point to the **I can...** boxes.

3. Say **Think about how well you can do each Objective.** You have three choices: **I can do it very well, I can do it OK, and I need more work.** Tick the correct box at home.
4. Remind students to be honest!

5. Say **After you've completed the self-assessment, write a short list for me:**

- three things you found interesting in this lesson
- two questions you still have for me
- one thing you felt proud about, maybe something you did well.

**OPTIONAL:** Elicit some ideas from students and write them on the board, e.g.: **I enjoyed learning about hieroglyphics and testing my typing speed.**

5. Next lesson, clarify any questions that students still have.

Statements and answers that you might expect from students are highlighted in the notes in purple.

# How to Teach the Course

The Learn by doing pages are also explained in full, with notes on every activity.

Answers for tasks which involve completing tables, graphs and graphic organizers are clearly laid out.

## LESSON 2 pp. 16–17

### Learn by doing

#### COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

1 Look and match

- Ask **What do you remember about the different ages of technology?** Allow students to look back at the lesson for possible answers.
- Read the task out loud. Look at the example in the table. Then say **Now complete the table.** Allow students to complete this task in pairs or small groups before checking as a class.

**Answers:**

Dates	Ages of technology	Inventions
3000 BCE–1450 CE	The Pre-Mechanical Age	c
1450–1840	The Mechanical Age	a
1840–1940	The Electro-Mechanical Age	d
1940–present	The Electronic Age	b

#### GRAPHIC ORGANIZER

**AIM:** To organize what they know and identify gaps in knowledge.

**TIME:** 5–10 minutes

2 Think and write

- Read the task out loud and show pictures of the different items. You can use the images in the Student Book.
- Ask **Which direction is the timeline going in? From left to right.** Allow students to look back in the Student Book for answers. They can compare answers with peers. Nominate students for answers and invite them to complete the timeline on the board.

48 LESSON 2

## Learn by doing LESSON 2 The evolution of technology

#### Comprehension

1 Look and match

Complete the table with the information from each box.

The Electronic Age	The Electro-Mechanical Age	The Pre-Mechanical Age
--------------------	----------------------------	------------------------

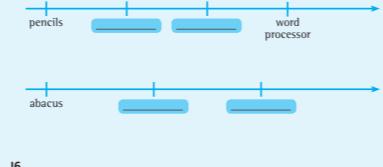
- printing machine, calculator, typewriter
- satellite, smartphone, online maps, word processor
- pens, pencils, parchment, paper, abacus
- telephone, telephone lines, record player

Dates	Ages of technology	Inventions
3000 BCE–1450 CE	The Pre-Mechanical Age	c
1450–1840	The Mechanical Age	a
1840–1940	The Electro-Mechanical Age	d
1940–present	The Electronic Age	b

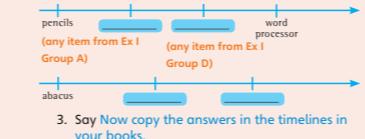
#### Graphic organizer

2 Think and write

Think about how technology develops. Look at Exercise 1 again. Complete the timelines showing how technology has developed



**Answers:**



#### Issues and challenges

3 Practice and write

Let's measure our speed at typing and writing. Work with a partner and practice typing and writing. Measure your speed each time. Type/write this sentence:

	Attempt 1	Attempt 2	Attempt 3
writing on paper			
typing on a cell phone (if available)			
typing on a computer keyboard			

#### Critical thinking

4 Think and answer

Read the scenarios. What method of communication would you choose in each situation? Write your answer and explain why.

- Your friend asks you if you can meet tomorrow. You need to send him/her a short reply to say yes.

- Your grandmother lives in a different city. You want to tell her about what you learned in school and what you want to do when you visit her.

- You want to send a short message to your cousin to say happy birthday.

#### ICT and me

5 Read and answer the questions

- What kinds of technology do you use at home? How do you use them?

- What kinds of technology do you want to use in the future?

16

#### ISSUES AND CHALLENGES

**AIM:** To increase their technological awareness.

**TIME:** 5–10 minutes

3 Practice and write

- Read through the instructions. Deal with any new words as needed. If students do not have the necessary tools to test their typing speed, this can be assigned as homework.
- To keep students in synch, set one minute maximum for each attempt and ask students to record how many words they managed to write / type. Monitor as students attempt the task and support as needed.
- Check speeds as a whole class and ask **Which way was fastest? How can improve your speed?** (Suggested answers: **Practice with a timer, touch type.**)

LESSON 2 49

#### CRITICAL THINKING

**AIM:** To develop their ability to think purposefully and understand multiple perspectives.

**TIME:** 5–10 minutes

4 Think and answer

- Read through the instructions and the different scenarios. Deal with any new words as needed.
- Students can work through each scenario with a partner or you could assign scenarios to different pairs or groups of students. Monitor as students work through their scenarios and support as needed.
- Check answers as a whole class and discuss any different answers. (Suggested answers: 1. instant / text message; 2. letter; 3. instant / text message, voice recording)

#### ICT AND ME

**AIM:** To personalize the topic and consider how technology affects them and their world.

**TIME:** 5–10 minutes

- Read and answer the questions
  - Say **Sit with a classmate, shoulder to shoulder. Discuss the questions together.** Students discuss the questions in pairs.
  - Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
  - Elicit some answers from the class. Board these and vote for the best ideas.

**OPTIONAL:** Ask students to describe or draw a technological device they would like to invent. Encourage them to think about how this invention could help them and society.

#### EXTENSION ACTIVITIES

- Ask students to do online research on technology that is being developed for the future, for example smart homes, electric cars, nanotechnology.
- Ask students to interview their parents or grandparents about everyday life without technology in the past, for example how they communicated, travelled, studied, etc. and compare this to modern day life with technology.

ICT AND ME activities offer students a chance to personalize the topic and apply their knowledge to their own situation.

Suggested Extension activities encourage students to do further research on the topic. There are suggestions included that do not require access to technology as well as a technological option. Teachers can assign the tasks that are best suited to their students.

# Teaching Routines

## Teaching Routines

The Students need to know what they should understand, what should be done and what's expected from them by the end of each lesson. Having the same sections in every lesson is one way to achieve this; using teaching routines is another way.

A **routine** simply means a set of organized steps that is repeated in similar circumstances. As you use a routine again and again, it becomes easier and easier to use because the pattern is familiar. You will never be left with a page in the Student Book that you don't know how to teach. You will always have the necessary language to explain the lesson. However, if you wish to adapt the routine to your own classroom or context, you certainly can, as long as you meet the stated lesson objectives.

You will start Theme I with just one or two routines for each section, and as the term progresses, one or two more routines will be added for the main lesson sections. In this way you can have both consistency and variety to keep your teaching both structured and fresh.

Here are the teaching routines. Examples of language that you would say are in blue; examples of what you would write on the board are in purple; examples of what students might say are in green. Remember that these are examples only, and in specific lessons, the language is adjusted to reflect the Student Book.

## OBJECTIVES ROUTINE 1

### Time to Explore!

**AIM:** Engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

1. Draw students' attention to the Lesson topic. **Say** *This lesson we're going to learn about <the lesson topic>.* (See the Lesson Plan.)
2. Read the objectives aloud to the class.
3. Write on the board *Now's our chance to explore ...*. To ensure that students think in detail about the objectives, write more actions directly below *explore*, e.g: *think about, learn about, study, discuss, look at, investigate, consider, plan*.
4. Give students a minute to look at the lesson and assess what they'll explore.
5. Elicit answers from individual students, e.g.: *Now's our chance to ... read a map!*

## OBJECTIVES ROUTINE 2

### What Do I Need to Do?

**AIM:** Encourage students to take responsibility for their own learning needs and paths.

**TIME:** 2–3 minutes

1. Draw students' attention to the Lesson topic. **Say** *This lesson we're going to learn about <the lesson topic>.*
2. Read the objectives aloud to the class. **Optional:** **Ask** *Which objectives can you already do?* Elicit some ideas.
3. **Ask** *What kind of things will we need to pay attention to during the theme?*
4. Elicit ideas from the students, e.g., **I need to pay attention to dates and times!**
5. Write students' ideas on the board and remind students to pay attention to them during the lesson.

## OBJECTIVES ROUTINE 3

### Understanding Objectives

**AIM:** Ensure that students understand the objectives of the lesson.

**TIME:** 2–3 minutes

1. Draw students' attention to the Objectives. **Say** *To meet the objectives of a lesson, it's a good idea to make sure that you understand what the objectives are actually saying.*
2. Read the objectives aloud to the class.
3. **Ask** *Are there are any words or phrases in the objectives that you don't understand? What are they?*
4. Explain any unfamiliar terms or vocabulary. Some students, for example, may be unfamiliar with the Egyptian Knowledge Bank. Explain: *The Egyptian Knowledge Bank is an online resource for teachers, students, and the public in general. It has links to books, articles, and all kinds of information. We'll be learning more about it in this lesson.*
5. Remind students that they will check the **I can** boxes after completing the lesson.

## ENGAGE ROUTINE 4

### 4. Think-Pair-Share

**AIM:** Enable students to participate confidently and collaboratively in a class discussion that leads to the objectives of the lesson.

**TIME:** 2–5 minutes

1. Draw students' attention to **Engage**.
2. **Say** *I'm going to ask you a question. Don't say anything! Just think about it quietly.*
3. Read aloud the question. Let students think silently about some possible answers. They may make simple notes if they wish.
4. After a minute, **say** *Now sit shoulder to shoulder with a classmate and share ideas. You can make notes, but keep them very short.*
5. Check that the students are comparing their ideas with a classmate.
6. **Say** *I'm going to ask the question again. This time, put up your hand to answer.*
7. Read the question aloud again. Call on students with their hands up and have them share their ideas with the class. They can refer to their notes but shouldn't read whole sentences aloud. **Optional:** To encourage more discussion, **ask** follow-up questions *<Name>, what do you think? <Name>, why do you think that? Can you give an example? etc.*

## ENGAGE ROUTINE 5

### Photo Detectives!

**AIM:** Engage students in a discussion that leads to a lesson objective or life skill; use critical thinking to investigate clues in photos.

**TIME:** 2–5 minutes

1. Draw students' attention to **Engage**. Tell students to cover the photo with a book.
2. Read the Engage questions aloud.
3. Elicit some quick answers from the class.
4. **Say** *You're going to be photo detectives! Uncover the photos and look for clues!*
5. **Say** *Sit knee to knee. Investigate the photos. Tell each other what you find.*
6. Read the Engage questions aloud again. Elicit answers from individual students.
7. See the Lesson Plan for answers and follow-up questions.

## LEARN ROUTINE 6

### Preview

**AIM:** Activate students' background schema and encourage them to anticipate the content so they can build context before reading.

**TIME:** 2-5 minutes

1. **Say** *Previewing an article before you read can help you build context. You will have an idea what the article is about before you even start reading. It's a good habit to get into because it will help you understand and remember what you read.*
2. Read aloud the first sentence. Tell students that the first sentence of a reading passage is called a "topic statement." It gives the main idea of the article and the ideas or information that will be covered.
3. Direct students' attention to the subheads. Ask *Subheads also give clues about the ideas and information that will be covered. Based on the subheads you see here, what do you think the article is about?* Listen to student responses and provide feedback that helps them focus on the ideas suggested by the subheads.
4. Tell students to keep their guesses in mind as they read the article. When they finish, ask if their guesses were correct.

**OPTIONAL:** Write guesses (both correct and incorrect) on the board. Refer to them during the lesson, i.e., *Amal guessed we would learn about growing plants. She was right!*

## LEARN ROUTINE 7

### K-W-L Chart

**AIM:** Motivate students to read a long text; enable students to achieve the lesson Objectives.

**TIME:** 15-20 minutes

### BEFORE READING

1. Draw a chart with three columns on the board. Label the columns: K, W, L.
2. **Say** *Copy the chart into your notebook or on a piece of paper.*
3. **Say** *K means: What do you Know about this topic? W means: What do you Want to know about the topic? L means: What have you Learned about the topic? Before we read, we're going to complete columns K and W. After we read, we're going to complete column L.*
4. Have students sit shoulder to shoulder.
5. **Ask** *What do you Know about the topic? Share ideas and note them in column K.*
6. **Ask** *What do you Want to know about the topic? Share ideas and write them in the column W.*

### AFTER READING

7. After students have read the text, **ask** *What did you Learn about the topic? Share ideas and write them in column L.*
8. Point to the relevant lesson Objective(s). **Say** *Now you can ... Well done!*

## LEARN ROUTINE 8

### Taking Notes

**AIM:** Take notes while reading to self-monitor comprehension.

**TIME:** 10-12 minutes

1. **Say** *Taking notes while you read is a good way to make sure you are following the text. Look out for big ideas and words you don't understand. Use a pencil to draw a line under the most important words. Or you can circle them. Another way is to use a highlighter. If you don't understand something, look it up in a dictionary. You can also ask me if you need help. Then write the word's meaning in the margin.*
2. Have students read the text and take notes as directed.
3. When they are finished, remind students that taking notes while reading is a good skill to develop, but before doing so they should make sure it is OK to write in the material provided to them.

## LEARN ROUTINE 9

### Mind-Mapping

**AIM:** Help students achieve the lesson Objectives by organizing the new information they have learned.

**TIME:** 15-20 minutes

1. Draw students' attention to **Learn**. Read the heading and the lesson Objectives.
2. Draw a big box in the center of the board and label it.
3. Have students read the information in **Learn**. Pause at useful points in the text and add to the information in the Mind Map on the board. The aim is to visually organize what students learn about the topic.

**OPTIONAL:** After they finish reading, ask some more questions.

**OPTIONAL:** *Say Now copy the mind map in your notebook or on a piece of paper.*

## LEARN ROUTINE 10

### Popcorn Reading

**AIM:** Enable students to read text in a way that maintains interest.

**TIME:** 15-20 minutes

1. **Say** *We're going to try Popcorn Reading now. I'll ask a student to read aloud. When I say "Popcorn," that student should stop, look around, quickly choose the next person to read and say their name.*
2. **Remind the class** *Remember that you must choose a NEW person; don't choose the person who just read! And stay on your toes, because you could be called any time!*
3. Assign the first person to read aloud. The other students read along silently.
4. Call "Popcorn" when the reader reaches a logical point in the text (e.g., the end of a paragraph or idea). That reader shouts the name of the next person to read.
5. Note: Remind students to read the definitions for tag and credit.

**OPTIONAL:** Instead of calling out their name, the reader could tap another student on the shoulder.

6. The activity continues this way, in the form of a Round Robin, until you reach the end.

## LEARN ROUTINE 11

### Buddy Reading

**AIM:** Enable students to read text in a way that maintains interest; to help students improve their own reading ability.

**TIME:** 15-20 minutes

1. Form pairs. Students sit with a classmate, preferably with a similar reading ability, shoulder to shoulder.
2. **Say** *You're reading Buddies. That means you're reading friends, so your job is to help each other. You're going to take turns reading the text to each other. If you're reading, remember you can ask for support from your Reading Buddy, or even ask them to take over for a while. I'll be moving around the classroom if you need me.*
3. Point to the first paragraph of the text. Tell students to take turns reading each paragraph aloud to their partner.
4. While Reading Buddies work together, circulate through the room and provide help with pronunciation and comprehension as necessary.
5. To speed up the lesson, shout *My Turn!* and read a section aloud. Then hand over the next section to the buddies. Continue alternating like this, so that they receive practice listening to you, as well as to each other.

## EXPLORE ROUTINE 12

### Time for a Discussion!

**AIM:** Explore ideas and information that were introduced through the reading passage in Learn.

**TIME:** 7-10 minutes

1. Tell students that the class will discuss these questions as a way of reviewing the material that they just read.
2. Read aloud the questions in **Review** and invite students to respond. Provide feedback as the discussion progresses, helping to clarify meanings from the text as necessary.
3. When the discussion has concluded, ask students to share about one thing from the discussion that they want to remember.

## EXPLORE ROUTINE 13

### Brainstorm

**AIM:** Enable students to work quickly, creatively, and collaboratively to generate ideas; lead an activity based on their ideas to meet the objectives.

**TIME:** 10 minutes

1. Introduce the **Explore** topic. Read the instructions aloud.
2. **Say** *Now we're going to think of lots of ideas, quickly, without stopping!*
3. Have students sit in groups of three.
4. **Say** *One person in the group needs a piece of paper and a pen (or pencil). He or she will write your group's ideas down on the paper.*
5. **Say** *You have 12 minutes to write down all the ideas you can think of! Don't stop!*
6. **Say** *Go!* The activity begins. After one or two minutes, **call** *Stop!*
7. Give the students time to read the ideas on their piece of paper.
8. **Ask** *What ideas did you think of? Tell the class an idea that you like.* Lead a group discussion based on their brainstorm ideas.

## EXPLORE ROUTINE 14

### The 2 to 4 Discussion

**AIM:** Lead this discussion/activity in a way to meet the objectives while also linking into what they have learned so far.

**TIME:** 5–10 minutes

1. Introduce the **Explore** topic.
2. **Say** *Sit with a classmate, shoulder to shoulder. Discuss the question(s) together.* Students discuss the questions in pairs.
3. **Say** *Now join another pair and form a group of four. Sit knee to knee and share your ideas.* Students discuss the questions again, this time as a group of four.
4. Go around the classroom and listen to the pairs/groups while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
5. Elicit some answers from the class.

## REVIEW ROUTINE 15

### Test a Partner

**AIM:** Check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

1. Draw students' attention to **Review**. Explain that students are going to test each other on what they've learned this lesson.
2. **Say** *Sit with a classmate, knee to knee. Discuss the questions in your book.*
3. Move around the classroom and monitor the students. Make notes on things that they've learned incorrectly (or they've forgotten) and things they've done well.
4. **Say** *Stop now. I want to review a few things with you.* Clarify any misinformation.

## REVIEW ROUTINE 16

### Family Test

**AIM:** Check and consolidate the knowledge students should have learned today.

**TIME:** to be completed at home

1. Draw students' attention to **Review**.
2. **Say** *You're going to ask a family member to test you on your knowledge.*
3. **Say** *First, you are going to copy some questions on a piece of paper. Later on today, someone in your family will ask you the questions. Tell them everything you know!*
4. Have students copy the review questions to take home so that family members can test them.
5. When students return to class, follow-up by asking them: **Based on what you've learned so far, has your answer to the Engage question changed? How?**

## SELF-ASSESSMENT ROUTINE 17

### 3-2-1

**AIM:** Help students complete a truthful self-assessment and find the assistance they need to further develop; encourage critical thinking.

**TIME:** to be completed at home

1. Draw students' attention to **Self-Assessment**. Read the first instruction aloud and point to the *I can...* boxes.
2. **Say** *Think about how well you can do each Objective. You have three choices: I can do it very well, I can do it OK, and I need more work. Check the correct box at home.*
3. Remind students to be honest!
4. **Say** *After you've completed the self-assessment, write a short list for me:*
  - *three things you found interesting in this lesson*
  - *two questions you still have for me*
  - *one thing you felt proud about, maybe something you did well.*

**OPTIONAL:** Write the list on the board for students to copy.

5. Next lesson, clarify any questions that students still have.

## SELF-ASSESSMENT ROUTINE 18

### Promise!

**AIM:** Help students complete a truthful self-assessment and find the assistance they need to further develop.

**TIME:** to be completed at home

1. Draw students' attention to **Self-Assessment**. Read the first instruction aloud and point to the *I can...* boxes.
2. **Say** *Think about how well you can do each Objective. You have three choices: I can do it very well, I can do it OK, and I need more work. Tick the correct box at home.*
3. Remind students to be honest!
4. **Say** *After you've completed the self-assessment, write a promise. Complete the sentence: In the next lesson, I'm going to try to... .*

**OPTIONAL:** Elicit some ideas from students and write them on the board, e.g.: *I'm going to...*

*take notes during class, ask the teacher when I don't understand, participate in discussions, listen when others speak, etc.*

5. Praise students for their efforts.

## VIDEO ROUTINE 19

### Preview, View, Review

**AIM:** Enable students to use the videos productively in the lesson.

**TIME:** 10 minutes

1. **Say** *You are going to watch a video about (name - see lesson plan). What do you remember about him/her from the beginning of this theme?*

**OPTIONAL:** Allow students to flick back to the Opening pages and refresh their memories.

2. Read aloud the question(s) (see Lesson plan).
3. Have a class discussion about the question(s). Students raise their answers to make predictions about what they will see and how the questions will be answered.

**OPTIONAL:** Have students complete this step in pairs.

4. Play the video once or twice.
5. Students pair up and discuss the answers to the questions. Ask *Were any of your predictions correct? Which ones?*

**OPTIONAL:** Ask follow-up questions about the video to generate more discussion, e.g.: *What did you find surprising about the video? What did you learn that you didn't know before?*

## Extension Activities

For the *Learn By doing* pages, the Teacher's Guide suggests two extension activities to further connect the lesson information to students' lives and contexts. Usually, one of these activities involves students researching some information online.

## Be the Expert

This section, included only in the Teacher's Guide, provides you with further information about the lesson topic to share with students, so they will come to respect the teacher in addition to the textbook as a source of knowledge. This section also includes a teaching tip specific to that lesson, and home-school connection activity to facilitate students' communication with family members about what they are learning and doing.

## Assessment

The course uses both summative and formative assessment.

### Summative Assessment

Each lesson and the Theme reviews have a self-assessment section where students reflect on the lesson objectives and how well they accomplished them. The self-assessment helps students to recognize their own progress and to communicate it to family members.

### Formative assessment

*Assess the students throughout the year. The teacher should observe students' participation in class as well as their written work. The Review pages at the end of each theme are an excellent opportunity to assess student progress and understanding of the theme. The teacher should then make use of this information in planning revision and further discussion of the topic to support the students in areas where they have difficulty.*

*At the end of the term, there is a project. This feature of the course is designed to practice the skills that students have learned. It should be used by the teacher as a formative assessment task to assess student participation and progress.*

### The Digital Component

*Every lesson in the course is available as a Digital Learning Object (DLO) on the Egyptian Knowledge Bank. Each DLO features a digital version of the book with interactive elements, such as the videos, incorporated. The DLOs are designed to be accessible on any device.*

**Make connections:** Students learn best when they recognize the value and importance of what they are learning. Keep pointing out to students ways in which what they are studying connects to their school and their community, and invite them to share connections to their families and their own lives.

**Work collaboratively:** Many of the activities involve working in pairs or groups. To provide variety, let students work with different partners and groups from time to time. While students are engaged with pair and group work, circulate around the class to answer questions and help out. If you notice common areas of confusion or common questions, go over those with the whole class.

**Review regularly:** As students progress through the lessons, refer to previous lessons, concepts, and skills. This helps students appreciate that what they learn can be applied to many other topics and situations, not just one lesson.

**Be fair:** Make sure that you call on students evenly, and not just the ones who most enthusiastically volunteer answers. Keep a notebook or gradebook with the class list where you can put a tick next to students' names after they answer a question; in this way you can easily see which students haven't been called on that day. While it may not be possible to call on every student in class every day, you can make sure that over the course of a week, every student has a chance to participate. Encourage hesitant or shy students.

**Use higher-order thinking skills:** Guide students to think critically by having them articulate the reasons behind their opinions. Ask questions such as *Can you explain why you believe that?, How can you test whether that is true?, Why do you think some people disagree with that?* Help students to see that deep understanding and learning to question and think is often more important than finding a single correct answer.

**Appreciate students' work:** If your classroom space allows it, display student work and projects around the room to foster students' pride in their achievements.

**Keep a record:** Encourage students to keep their written work in a notebook or portfolio, so that they can look back at their own progress and achievements and also share them with family members.

**Create a harmonious classroom:** Foster an atmosphere of inclusion and respect for diversity by discouraging competition and activities where students "win." Instead, provide opportunities for groups or the whole class to work collaboratively towards a common goal.

**Respect diversity:** You may have differently abled students or students with additional needs in your class, just as there are people of all abilities in the world of work and in society. Foster a sense of community in your classroom where every student feels valued. To the best of your ability, modify assignments or the classroom set-up to accommodate them without making them feel singled out or "different." For example, a student with poor vision could sit at the front of the class to see the board better, or if you had a hearing-impaired student, you could turn on captioning for the video. In fact, students of all abilities will appreciate opportunities to learn in different ways. Contact the specialist in your school if you need further advice or suggestions for specific situations.

Enjoy the course!

## Pacing Guide for Theme 1

Lessons	Activities	Recommended timings	Lessons	Activities	Recommended timings
<b>Theme opener</b>	Theme opener	6-8 minutes	<b>Lesson 5 and LBD</b>	5.I Objectives 5.I Engage 5.I Learn 5.I Explore 5.I Review 5.I Self-assess 5.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes At home 20-35 minutes
<b>Lesson 1: Explorer in Action</b>	I.I Objectives I.I Engage I.I Learn I.I Video I.I Explore I.I Review I.I Self-assess I.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes 5-10 minutes At home 20-35 minutes	<b>Lesson 6 and LBD</b>	6.I Objectives 6.I Engage 6.I Learn 6.I Explore 6.I Review 6.I Self-assess 6.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes At home 20-30 minutes
<b>Lesson 2 and LBD</b>	2.I Objectives 2.I Engage 2.I Learn 2.I Explore 2.I Review 2.I Self-assess 2.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes At home 25-50 minutes	<b>Lesson 7 and LBD</b>	7.I Objectives 7.I Engage 7.I Learn 7.I Explore 7.I Review 7.I Self-assess 7.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes At home 25-40 minutes
<b>Lesson 3 and LBD</b>	3.I Objectives 3.I Engage 3.I Learn 3.I Explore 3.I Review 3.I Self-assess 3.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes At home At home 25-45 minutes	<b>Lesson 8 and LBD</b>	8.I Objectives 8.I Engage 8.I Learn 8.I Explore 8.I Review 8.I Self-assess 8.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes At home At home 25-40 minutes
<b>Lesson 4 and LBD</b>	4.I Objectives 4.I Engage 4.I Learn 4.I Explore 4.I Review 4.I Self-assess 4.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes At home At home 10-20 minutes	<b>Review</b>	R.I Vocabulary R.I Review Questions R.I Critical Thinking R.I Essential Question R.I Activity	5-10 minutes 12-15 minutes 10-12 minutes 5-10 minutes 30-45 minutes



## THEME I pp. 8-9

### ICT in our lives

#### ESSENTIAL QUESTION

How can we use technology effectively?

**AIM:** To encourage students to think about what they already know about technology.

**TIME:** 2-3 minutes

Read the Essential Question with the class. Ask them to name different types of technology that they use. Explain that technology can be modern (such as cell phones) or very old (such as a shaduf). Tell the class that this theme will help them to answer this essential question.

#### Spotlight on Theme 1

**AIM:** To introduce the theme.

**TIME:** 4-5 minutes

Look at the photo with the class. Ask what they can see and what they think the person is doing. Elicit all reasonable responses, then read the caption with the class.

Then ask students to work in pairs to read the Spotlight text and find out about the theme. Ask them to say what they know about the history of technology and how technology can help people of determination. Write their ideas on the board. Ask them to refer back to their ideas at the end of the theme, to see how much they already knew and what they have learnt.

## LESSON 1 pp. 10–11

### EXPLORER IN ACTION

#### OBJECTIVES

- Identify some technology used to explore the Earth.
- Explain the different terms for technology.
- Describe how technology can be used to search for things under the ground.

#### LIFE SKILLS

- Learning to know: critical thinking; problem solving

#### VALUES

- Academic values: appreciation of science and scientists

#### ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

#### MATERIALS NEEDED

- Everyday technological items e.g. a laptop, a desktop computer, a cell phone (optional)
- Photos of jungles (Exercise 5)

### OBJECTIVES

**AIM:** To encourage students to think about what they already know about technology and how they would use technology.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, bring items or images of items related to technology (or point to technological items in the classroom). Have students suggest other technological items.

- Follow the steps for **Routine I: Time to Explore!**
- Draw students' attention to the Lesson topic.

Say **This lesson we're going to learn about technology.** (See the Lesson Plan.)

- Read the objectives aloud to the class.

## LESSON 1 EXPLORER IN ACTION

#### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can...**

- Identify some technology used to explore the Earth.  Very well  OK  Need more work
- Explain the different terms for technology.  Very well  OK  Need more work
- Describe how technology can be used to search for things under the ground.  Very well  OK  Need more work

#### Engage

What different kinds of technology can be used to explore the Earth? What do people wish to find when they explore? What do archaeologists wish to find when they are exploring?

#### Learn

Albert Lin is an archaeologist. He uses different tools to explore archaeological sites without digging. These tools are useful because sometimes archaeologists cannot dig. This can save time, cost and effort. Other times, archaeologists may not know where to dig. They may need to do a survey above ground. They can use this survey to decide on which places to research.

There are many tools which Albert Lin can use. He can use photographs from satellites and drones. To find an object, he can use GPS. Once he finds something, he can search under the ground. To do this, he can use magnetometers and ground penetrating radar.



- Write on the board **Now's our chance to explore...**! To ensure that students think in detail about the objectives, write more actions directly below **explore**, e.g.: **think about, invent, study, discuss, look at, investigate, consider, plan.**
- Give students a minute to look at the lesson and assess what they'll explore.
- Elicit answers from individual students, e.g.: **Now's our chance to... learn about new technology!** (See objectives in the Lesson Plan.)
- (Suggested answers: **Now's our chance to... learn about technology used to explore the Earth, explain the different terms for technology, tell how technology can be used to search for things under the ground.**)
- Say **By the end of the lesson, you'll be able to do all these things!**

## ENGAGE

**AIM:** To think about their own experience and knowledge of technology.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**
  - Draw students' attention to Engage.
  - Say **I'm going to ask you some questions. Don't say anything! Just think about it quietly!**
  - Read aloud the questions. (See the Lesson Plan.) Let students think silently about some possible answers. They may make simple notes if they wish.
  - After a minute, say **Now sit shoulder to shoulder with a classmate and share ideas. You can make notes but keep them very short!**
  - Check that the students are comparing their ideas with a classmate.
  - Say **I'm going to ask the questions again. This time put up your hand to answer!**
  - Read the question aloud again. Call on students with their hands up and have them share their ideas with the class. They can refer to their notes but shouldn't read whole sentences aloud.
- Allow a variety of answers, provided these all relate to technology and exploration.

(Answers: **Computers can be used to calculate data, cameras can be used to take pictures, people look for new sources of energy and new places which have not been discovered yet, archaeologists look for traces of ancient civilizations.**)

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, what do you think? How can we use technology at school? We can have online lessons and use computers to do our homework. <Name>, what would society be like without technology? Without technology, we wouldn't be able to speak to people who are far away, we'd have to do everything by hand, we wouldn't have video games or cell phones! Why do you think that? Can you give an example? Etc.**

- Remind students to give a reason for their opinion.
- Refer back to the picture and read the Spotlight insert out loud again. Ask: **Do you know any famous archaeologists? Indiana Jones. Can you think of famous ruins and civilizations in Egypt? The Pyramids and the ancient Egyptians.**

## LEARN

**AIM:** To learn about different tools to explore archaeological sites.

**TIME:** 15–20 minutes

- Say **Now we're going to read about an archaeologist called Mr. Lin's adventures. By the end, we'll be able to say which tools he uses to explore archaeological sites.**
- Follow the steps for **Routine 10: Popcorn Reading.** To keep reading fun and engaging, vary your style each lesson.
  - Draw students' attention to Learn. Ask **Who is the man lying on the ground? Mr. Lin.** Say **We're going to try Popcorn Reading now. I'll ask a student to read aloud. When I say "Popcorn", that student should stop, look around, quickly choose the next person to read and say their name. While you listen, make note of the tools Mr. Lin uses in the order in which they are mentioned in the text.**
  - Remind the class **Remember that you must choose a NEW person; don't choose the person who just read! And stay on your toes, because you could be called any time!**
  - Assign the first student to read aloud. The other students read along silently.
  - Call "Popcorn" when the reader reaches a logical point in the text (e.g., the end of a paragraph or idea). That reader shouts the name of the next person to read.

**OPTIONAL:** Instead of calling out their name, the reader could tap another student on the shoulder.

- The activity continues this way, in the form of a Round Robin, until you reach the end. At the end of Paragraph 2, stop and ask **Which tools does Mr. Lin use?** Elicit the answers and write them in the order in which they are mentioned.

(Answers: **photographs from satellites and drones, GPS, magnetometers, ground penetrating radar.**)

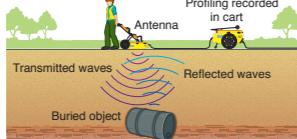
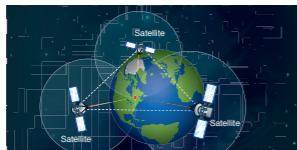
#### OPTIONAL:

- At the end of Paragraph 1, stop and ask **Why can it be difficult for archaeologists to dig? Sometimes they cannot dig or may not know where to dig.**
- After they finish reading and have listed the tools, ask some more questions to check understanding, e.g.: **What does Mr. Lin use each tool for? Which tool can discover objects buried underground? Ground penetrating radar.**

#### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
Writing the vocabulary (global positioning system-GPS, magnetometer, ground penetrating radar) on the board or highlighting them in the Student's Book.	- Supporting students by asking their classmates to help them write.	- Describing pictures for the blind and displaying them zoomed for the weak sighted.			

Here are some tools archaeologists use to explore the earth:

	Ground penetrating radar This radar can discover objects buried underground.
	Global positioning system (GPS) This is a way to find the location of something using satellites.
	Magnetometer This measures a magnetic field. It can find metal underground

#### Video

Watch the video about Albert Lin exploring Tikal city. What tools did he use? How did they let him see what was hidden by trees?

#### Explore

You don't have to be a scientist, engineer, archaeologist, or even a grown-up, to use technology! Research different technology by searching online and talking to your teacher, family or friends. What kind of technology would you use to help you explore an area? Explain why you chose it and how you would use it to help you to explore.

#### Review

1. What technological tools can archaeologists use on their expeditions?
2. Can you think of some examples of things these technological tools could be used to find?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

II

## BE THE EXPERT

Some archaeological sites, such as ancient cities, are visible on the surface. Other sites are buried deep beneath the ground. After finding a site, an archaeologist digs slowly and carefully. This work is called excavation, or a “dig”. In addition to technology, archaeologists can also use manual tools like spoons, knives, picks and brushes in their work. They try to uncover buildings, tools, weapons, art, and anything else that people made. These items are called artifacts.

## TEACHING TIP

To test students' understanding of the technological tools explored in this lesson, cut up cards with the name of the tool on one card and its description on the other. Distribute cards and have the students mingle until they find their match. Alternately, place the cards face down on a desk or table and have students uncover the cards two at a time until they find the matches.

## HOME-SCHOOL CONNECTION

#### Life skill:

Learning to know: critical thinking  
Students can ask their families what they know about technological tools to explore the Earth. If their families don't know much about this topic, students can teach them what they know and help them discover how useful these tools are.

## VIDEO

**AIM:** To learn more about how Albert Lin makes use of technology in his archaeological explorations.

**TIME:** 5-10 minutes

- Follow the steps for **Routine I9: Preview, View, Review**.
- Say **You are going to watch a video about Albert Lin. What do you remember about him from the beginning of this theme?**

- Allow students to flick back to the Theme Opener pages and refresh their memories.
- Read aloud the questions in **Video**. Have students complete this step in pairs. Play the video once or twice. Students pair up and discuss the answers to the questions.
- Ask follow-up questions about the video to generate more discussion, e.g.: **What did you find surprising about the video? What did you learn that you didn't know before?**  
(Answers: **He used lidar (satellites, planes and computer tablets). These sent light between the leaves of trees. When the light reflected back, they could see what was under the trees.**)

## EXPLORE

**AIM:** To understand different technology used to explore the Earth.

**TIME:** 5-10 minutes

- Introduce the topic. Say **Now we're going to look at technology used to explore the Earth**.
- Follow the steps for **Routine I4: The 2 to 4 Discussion**.

- Introduce the Explore topic. Read the question aloud. Draw students' attention to the table with the descriptions of the tools Mr. Lin uses and encourage them to find alternative tools by looking online and talking to people in their community.
- Say **Sit with a classmate, shoulder to shoulder. Discuss the questions together.** Students discuss the question in pairs.
- Say **Now join another pair and form a group of four. Sit knee to knee and share your ideas.** Students discuss the question again, this time as a group of four.
- Go around the classroom and listen to the pairs/groups while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
- Elicit some answers from the class. (See the Lesson Plan.)

**OPTIONAL:** Introduce more critical thinking by asking students to rank which technology would be most useful for exploration. Encourage creative responses.

## LIFE SKILLS

Praise students for thinking critically. Explain that this is a useful skill to solve problems.

## REVIEW

**AIM:** To informally assess themselves to see if they understand the main ideas of the lesson. Teachers can use this as a barometer for students' needs to inform future teaching.

**TIME:** 5-10 minutes

- Follow the steps for **Routine I5: Test a Partner**.
  - Draw students' attention to **Review**. Explain that students are going to test each other on what they've learned this lesson.
  - Say **Sit with a classmate, knee to knee. Take turns to ask and answer the questions**.
  - Move around the classroom and monitor the students. Make notes on things that they've learned incorrectly (or they've forgotten) and things they've done well.
  - Say **Stop now. I want to review a few things with you**. Clarify any misinformation or confusions. Stress what they did well.
- At the end of the section, say **Well done! You've learned a lot this lesson!**

## SELF-ASSESS

**AIM:** To evaluate their learning process and determine next steps.

**TIME:** to be completed at home

- Follow the steps for **Routine I8: Promise!**
  - Draw students' attention to **Self-assess**. Read the first instruction aloud and point to the **I can . . .** boxes.
  - Say **Think about how well you can do each Objective. You have three choices: I can do it very well, I can do it OK, and I need more work. Tick the correct box at home**.
  - Remind students to be honest!
  - Say **After you've completed the self-assessment, write a promise. Complete the sentence: In the next lesson, I'm going to try to . . .**

**OPTIONAL:** Elicit some ideas from students and write them on the board, e.g.: **I'm going to . . . take notes during class, ask the teacher when I don't understand, daydream less often, run on often to my friends, etc.**

- Praise students.

## Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Playing the video about the scientist Albert Lin, by sectioning it and playing one section at a time, commenting on it and deducing its main idea, then moving on to the rest of the sections and do the same. - Facing hearing impaired students while commenting on the videos.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.	Describing the content of the videos to the blind.			

## LESSON 1 pp. 12–13

### EXPLORER IN ACTION

#### LIFE SKILLS

**AIM:** To think through steps that lead to a desired goal by identifying and understanding a problem and devising a solution to address it.

**TIME:** 5–10 minutes

1 Read and answer

1. Ask **What do you remember about Mr. Lin?** Allow students to look back at the lesson for possible answers.

2. Read the questions out loud.

Brainstorm the skills of an engineer and an archaeologist, e.g. good at maths, good at solving problems, curious, knows how to use different technology, etc. Then ask **Which do you think are the most important skills for each job?** (Suggested answers: **An engineer needs math skills to work out measurements, they both need problem solving skills to understand how people lived in the past, they both need to be able to use different technology according to the task they have to complete.**)

## LESSON 1 EXPLORER IN ACTION

#### Life skills

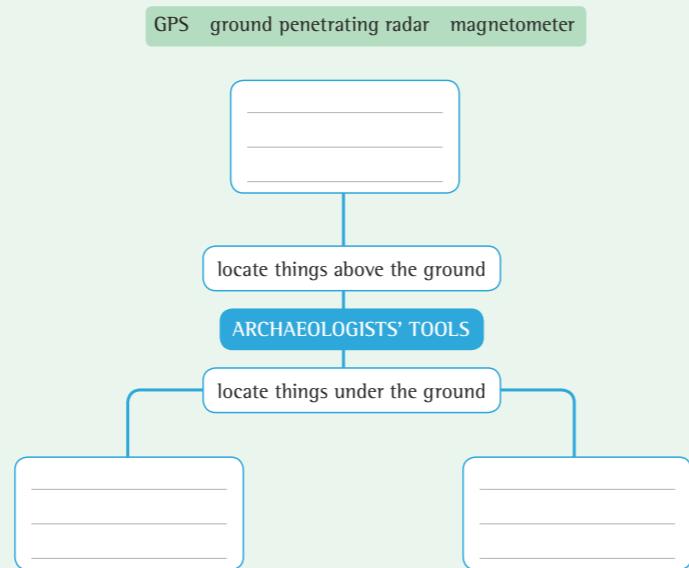
##### 1 Read and answer

In your opinion, what are the most important skills for an engineer? In your opinion, what are the most important skills for an archaeologist?

#### Graphic organizer

##### 2 Read and complete

Which tools help archaeologists locate things above the ground? Which tools help archaeologists locate things below the ground?



12

#### Critical thinking

##### 3 Think and answer

Read the scenarios below. Decide which tools from Exercise 2 could be used for each scenario.

1. You want to see if there are any old coins buried underground.

2. You receive a message from a friend who is lost and you want to try to find them.

3. You want to find out if there are any old buildings under the ground.

##### 4 Discuss in pairs

1. Mr. Lin uses his engineering experiences in his archaeological work. Think of other subjects or backgrounds which might be useful for an archaeologist.

2. Technology has become very advanced in the last fifty years. Think about the next fifty years. What changes do you think we will see in technology? How might they help archaeologists?

##### 5 Think and answer

Imagine you are planning an archaeological expedition to find the remains of a city buried in the desert. Write a short paragraph to explain what technology you will use for your expedition and how you will use it.

For our archaeological expedition, we will need to use ...

##### 4 Discuss in pairs

1. Say **Sit with a classmate, shoulder to shoulder.** Discuss the question(s) together. Students discuss the questions in pairs.

2. Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.

3. Elicit some answers from the class. Board these and vote for the best ideas. (Suggested answers: **1. history, math, science 2. Students' own answers.**)

##### 5 Think and answer

1. Read through the instructions. You can show images of jungles and buried cities to give the task more context.

2. Remind students to mention the tools they will use and why. They can refer to the technology mentioned in this lesson as well as any other tool they have researched and learned about.

3. Give students time to write their paragraph. This could also be assigned as homework.

4. Remind students to proof read their paragraphs to make sure they have addressed the points in the questions. Encourage students to check each other's work for feedback. You could display students' work on the wall and have a gallery walk.

### EXTENSION ACTIVITIES

1. Ask students to do online research on an archaeological site in Egypt and the technology used on that site.
2. Ask students to visit an archaeological museum or local site and describe the tools displayed. If they cannot visit these places in person, they can find out about them and the tools used.

#### GRAPHIC ORGANIZER

**AIM:** To organize what they know and identify gaps in knowledge.

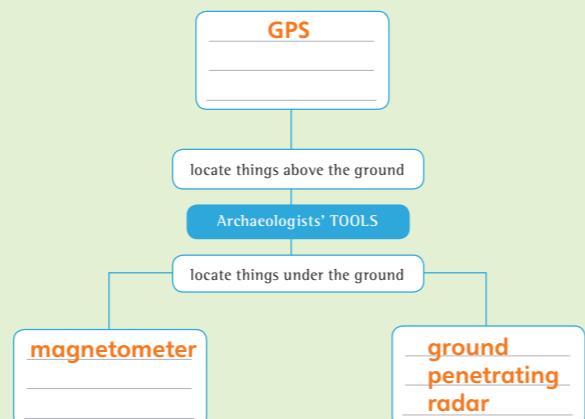
**TIME:** 5–10 minutes

2 Read and complete

1. Read the question out loud and show pictures of the different tools. You can use the images in the Student Book.

2. Ask **Do you remember which tools help archaeologists locate things above the ground? Which tools locate things below the ground?** Allow students to look back in the Student Book for answers. They can compare answers with peers. Nominate students for answers and invite them to complete the table on the board.

#### Answers:



3. Say **Now copy the answers in the table in your books.**

#### CRITICAL THINKING

**AIM:** To develop their ability to think purposefully and understand multiple perspectives.

**TIME:** 10–15 minutes

3 Think and answer

1. Read through the instructions and the different scenarios. Deal with any new words as needed.

2. Students can work through each scenario with a partner or you could assign scenarios to different pairs or groups of students. Monitor as students work through their scenarios and support as needed.

3. Check answers as a whole class and discuss any different answers. (Suggested answers: **1. magnetometer 2. GPS 3. ground penetrating radar**)

## LESSON 2 pp. 14–15

# The evolution of technology

## OBJECTIVES

- Discuss the history of ICT.
- Discuss how technology is used in our daily live.
- Improve my typing speed.

## LIFE SKILLS

- Learning to know: critical thinking; problem solving
- Learning to be: communication; self-management

## VALUES

- Academic values: appreciation of science and scientists; curiosity

## ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

## MATERIALS NEEDED

- A picture of the Rosetta Stone (Be the Expert)
- Pictures of hieroglyphs, a book, a dial up telephone, a tablet or laptop (Teaching Tip)

## LESSON 2 The evolution of technology

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can...**

Very well	OK	Need more work
Very well	OK	Need more work
Very well	OK	Need more work

### Engage

What are some ways you can record information?  
What is your favorite way of communicating with others?

### Learn

Technology has certainly come a long way! Look at the timeline and read about what happened in each age of technology.

#### 3000 BCE–1450 CE

The Pre-mechanical Age: During this age, people started to communicate through pictures like hieroglyphics and later by words and numbers. People would record lots of information about agreements made. These documents are key to understanding history. Many of them are now available online, such as on the Egyptian Knowledge Bank.



#### 1450–1840

The Mechanical Age: During this age, people recorded a tremendous amount of information. This led to a desire to make it easier to record and share. There was a technology explosion! One invention was a printing process which made it easier to make books and another was the Pascaline which was an early calculator.

14

## OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths and think about what they already know about technology.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, brainstorm different ways we use technology in our everyday lives, then have students rank these in order of importance.

- Follow the steps for **Routine 2: What Do I Need to Do?**
  - Draw students' attention to the Lesson topic. Say **This lesson we're going to learn about the evolution of technology.** (See the Lesson Plan.)
  - Read the objectives aloud to the class.

**OPTIONAL:** Ask **Which objectives can you already do?** Elicit some ideas.

- Ask **What kind of things will we need to pay attention to during the theme?**
- Elicit ideas from the students, e.g., **I need to pay attention to dates and times!** (See suggested answers in the Lesson Plan.)
- Write students' ideas on the board and remind students to pay attention to them during the lesson.

(Suggested answers: **I need to pay attention to... times and dates, the types of technology mentioned, how I can improve my typing speed!**)

- Say **By the end of the lesson, you'll be able to do all these things!**

## ENGAGE

**AIM:** To think about their own experience and knowledge about technology and ways to communicate.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**
  - Draw students' attention to Engage.
  - Say **I'm going to ask you some questions. Don't say anything! Just think about it quietly!**
  - Read aloud the questions. (See the Lesson Plan.) Let students think silently about some possible answers. They may make simple notes if they wish.
  - After a minute, say **Now sit shoulder to shoulder with a classmate and share ideas. You can make notes but keep them very short!**
  - Check that the students are comparing their ideas with a classmate.
  - Say **I'm going to ask the questions again. This time, put up your hand to answer!**
  - Read the question aloud again. Call on students with their hands up and have them share their ideas with the class. They can refer to their notes but shouldn't read whole sentences aloud.
- Allow a variety of answers provided these all relate to ways of recording information and communicating with others.

(Suggested answers: **We can record information by writing it down, by drawing pictures or taking photos of what we see, by recording what we hear. We can communicate with others by speaking, with gestures, by writing to them, by calling or though video.**)

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, how do you think we will record information in the future? <Name>, how do you think we will communicate with others in the future? Is it better to talk to someone face to face, over the phone or write to them? Why do you think that? Can you give an example? Etc.**

- Remind students to give a reason for their opinion.

## LEARN

**AIM:** To learn about the ages of technology.

**TIME:** 15–20 minutes

- Say **Now we're going to read about different ages of technology. By the end, we'll be able to say what happened in each.**
- Follow the steps for **Routine 7: K-W-L Chart.**

**Before Reading**

- Draw a chart with three columns on the board. Label the columns: K, W, L.
- Say **Copy the chart into your notebook or on a piece of paper.**
- Say **K means: What do you Know about this topic? W means: What do you Want to know about the topic? L means: What have you Learned about the topic? Before we read, we're going to complete columns K and W. After we read, we're going to complete column L.**
- Have students sit shoulder to shoulder.
- Ask **What do you Know about the topic? Share ideas and note them in column K.**
- Ask **What do you Want to know about the topic? Share ideas and write them in the column W.**

**After Reading**

- After students have read the text, ask **What did you Learn about the topic? Share ideas and write them in column L.**

**OPTIONAL:** Have the students review column W. Ask **What else do you Want to know? If the answer wasn't in the text, where can you find the information?**

- Point to the relevant lesson Objective(s). Say **Now you can discuss the history of ICT and how technology is used in our daily lives. Well done!**

### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Writing concepts and essential vocabulary on the board (Pre-mechanical Age, Mechanical Age, Electro-Mechanical Age, Electronic Age) along with their dates in a different color for each age or in a box. - Summarizing the part regarding the ages in a way that keeps the information about the dates and the inventions of each age.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.	Describing pictures for the blind and displaying them zoomed for the weak sighted.			

**1840–1940**

The Electro-Mechanical Age: This was the beginning of communication as we know it today. During this age, electricity was first used. This allowed many new types of inventions such as the telephone. The first digital computer was also produced. It was 8 feet high, 50 feet long, 2 feet wide, and weighed 50 tons!



**1940–present**

The Electronic Age: This is considered the Information explosion age. Inventions and improvements are happening at a staggering pace. A key advancement in this age are personal computers or laptops. Satellites and GPS are also important. They help us locate things and communicate with people around the world instantly using email and instant messages.



**Explore**  
The average 10-year-old can type between 30 and 40 words per minute. Type a paragraph from this page. How many words can you type per minute? Practice and see if you can improve!

**Review**

1. Look at the timeline and the pictures. What are the different ways technology has helped people communicate?
2. How do you use technology in your school, your home, and your community?

**Self-assess**  
Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

15

## EXPLORE

**AIM:** To learn about typing speeds and assess how many words students can type per minute.

**TIME:** 5–10 minutes

- Introduce the topic. Say **Now we're going to think about our typing speed.**
- Follow the steps for **Routine 14: The 2 to 4 Discussion.**
  1. Introduce the Explore topic. Read the question aloud. Ask them to guess how many words they can type per minute. They will check their typing speed later in the lesson. Ask them to think of ways they can improve their typing speed.
  2. Say **Sit with a classmate, shoulder to shoulder. Discuss the question together.** Students discuss the question in pairs.
  3. Say **Now join another pair and form a group of four. Sit knee to knee and share your ideas.** Students discuss the question again, this time as a group of four.
  4. Go around the classroom and listen to the pairs/groups while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
  5. Elicit some answers from the class. (See the Lesson Plan).

**OPTIONAL:** Introduce more critical thinking by asking students why it is important to have a fast typing speed.

## LIFE SKILLS

Praise some or all students for thinking critically. Explain that they will use this skill during the lesson.

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine 15: Test a partner.**

**OPTIONAL:** Ask students to recreate the timeline of the ages of technology without looking at their books. Ask students to name some technological inventions that belong to each age.

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine 17: 3-2-1**
  1. Draw students' attention to Self-Assessment. Read the first instruction aloud and point to the **I can...** boxes.
  2. Say **Think about how well you can do each Objective. You have three choices: I can do it very well, I can do it OK, and I need more work. Tick the correct box at home.**
  3. Remind students to be honest!
  4. Say **After you've completed the self-assessment, write a short list for me:**
    - **three things you found interesting in this lesson**
    - **two questions you still have for me**
    - **one thing you felt proud about, maybe something you did well.**

**OPTIONAL:** Elicit some ideas from students and write them on the board, e.g.: *I enjoyed learning about hieroglyphics and testing my typing speed.*

5. Next lesson, clarify any questions that students still have.

## BE THE EXPERT

The Rosetta Stone is a stone with writing carved into it. French soldiers found it in Egypt in 1799. It helped people understand the Ancient Egyptian writing system called hieroglyphics and translate Ancient Egyptian writing. The stone is named after the city where it was found, Rosetta. Today, that city is called "Rashid" and the stone is now in the British Museum in London. It had three pieces of writing on it that said the same thing in three different languages: Ancient Egyptian script called demotic (the local language of the people in Egypt at that time), hieroglyphics and Ancient Greek.

### TEACHING TIP

To test students' understanding of the technological ages explored in this lesson, cut up cards with the images of items mentioned in the text, for example hieroglyphs, a book, a dial up telephone, a tablet or laptop. Ask students to place these items in order of the age they belong to.

### HOME-SCHOOL CONNECTION

**Life skill:** Learning to be: communication; self-management

Ask students to show their families and friends a picture of hieroglyphs, a book, a dial-up telephone, a tablet or laptop. Students ask them what they know about these things and which came first. Then, they can share what they have learned in this lesson about the ages of technology.

## LESSON 2 pp. 16–17

### Learn by doing

### COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

#### 1 Look and match

- Ask **What do you remember about the different ages of technology?** Allow students to look back at the lesson for possible answers.
- Read the task out loud. Look at the example in the table. Then say **Now complete the table.** Allow students to complete this task in pairs or small groups before checking as a class.

#### Answers:

Dates	Ages of technology	Inventions
3000 BCE–1450 CE	The Pre-Mechanical Age	c
1450–1840	<b>The Mechanical Age</b>	a
1840–1940	<b>The Electro-Mechanical Age</b>	d
1940–present	<b>The Electronic Age</b>	b

### GRAPHIC ORGANIZER

**AIM:** To organize what they know and identify gaps in knowledge.

**TIME:** 5–10 minutes

#### 2 Think and write

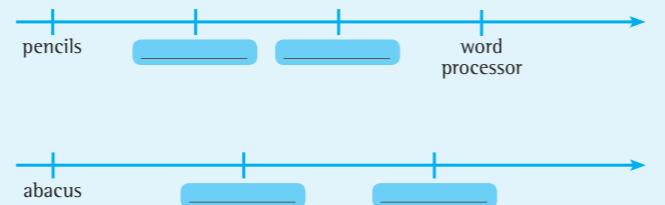
- Read the task out loud and show pictures of the different items. You can use the images in the Student Book.
- Ask **Which direction is the timeline going in? From left to right.** Allow students to look back in the Student Book for answers. They can compare answers with peers. Nominate students for answers and invite them to complete the timeline on the board.

Dates	Ages of technology	Inventions
3000 BCE–1450 CE	The Pre-Mechanical Age	c
1450–1840	<b>The Mechanical Age</b>	a
1840–1940	<b>The Electro-Mechanical Age</b>	d
1940–present	<b>The Electronic Age</b>	b

### Graphic organizer

#### 2 Think and write

Think about how technology develops. Look at Exercise 1 again. Complete the timelines showing how technology has developed



16

### CRITICAL THINKING

**AIM:** To develop their ability to think purposefully and understand multiple perspectives.

**TIME:** 5–10 minutes

#### 4 Think and answer

- Read through the instructions and the different scenarios. Deal with any new words as needed.
- Students can work through each scenario with a partner or you could assign scenarios to different pairs or groups of students. Monitor as students work through their scenarios and support as needed.
- Check answers as a whole class and discuss any different answers. (Suggested answers: 1. instant / text message; 2. letter; 3. instant / text message, voice recording)

### ICT AND ME

**AIM:** To personalize the topic and consider how technology affects them and their world.

**TIME:** 5–10 minutes

- Read and answer the questions
  - Say **Sit with a classmate, shoulder to shoulder. Discuss the questions together.** Students discuss the questions in pairs.
  - Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
  - Elicit some answers from the class. Board these and vote for the best ideas.

**OPTIONAL:** Ask students to describe or draw a technological device they would like to invent. Encourage them to think about how this invention could help them and society.

### EXTENSION ACTIVITIES

- Ask students to do online research on technology that is being developed for the future, for example smart homes, electric cars, nanotechnology.
- Ask students to interview their parents or grandparents about everyday life without technology in the past, for example how they communicated, traveled, studied, etc. and compare this to modern day life with technology.

### Learn by doing

## LESSON 2 The evolution of technology

### Comprehension

#### 1 Look and match

Complete the table with the information from each box.

The Electronic Age	The Electro-Mechanical Age
The Mechanical Age	The Pre-Mechanical Age

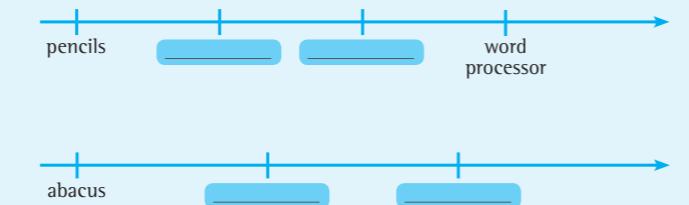
- a. printing machine, calculator, typewriter
- b. satellite, smartphone, online maps, word processor
- c. pens, pencils, parchment, paper, abacus
- d. telephone, telephone lines, record player

Dates	Ages of technology	Inventions
3000 BCE–1450 CE	The Pre-Mechanical Age	c
1450–1840	<b>The Mechanical Age</b>	a
1840–1940	<b>The Electro-Mechanical Age</b>	d
1940–present	<b>The Electronic Age</b>	b

### Graphic organizer

#### 2 Think and write

Think about how technology develops. Look at Exercise 1 again. Complete the timelines showing how technology has developed



16

### Issues and challenges

#### 3 Practice and write

Let's measure our speed at typing and writing. Work with a partner and practice typing and writing. Measure your speed each time.

Type/write this sentence:

Eat healthily, live happily, respect all and be yourself.

	Attempt 1	Attempt 2	Attempt 3
writing on paper			
typing on a cell phone (if available)			
typing on a computer keyboard			

### Critical thinking

#### 4 Think and answer

Read the scenarios. What method of communication would you choose in each situation? Write your answer and explain why.

- Your friend asks you if you can meet tomorrow. You need to send him/her a short reply to say yes.
- Your grandmother lives in a different city. You want to tell her about what you learned in school and what you want to do when you visit her.
- You want to send a short message to your cousin to say happy birthday.

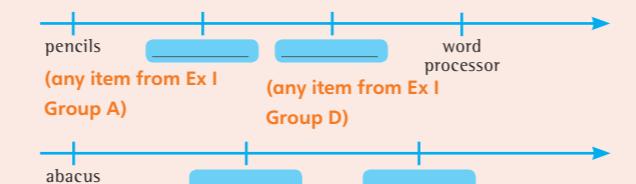
### ICT and me

#### 5 Read and answer the questions

- What kinds of technology do you use at home? How do you use them?
- What kinds of technology do you want to use in the future?

17

### Answers:



- Say **Now copy the answers in the timelines in your books.**

### ISSUES AND CHALLENGES

**AIM:** To increase their technological awareness.

**TIME:** 5–10 minutes

#### 3 Practice and write

- Read through the instructions. Deal with any new words as needed. If students do not have the necessary tools to test their typing speed, this can be assigned as homework.
- To keep students in sync, set one minute maximum for each attempt and ask students to record how many words they managed to write / type. Monitor as students attempt the task and support as needed.
- Check speeds as a whole class and ask **Which way was fastest? How can improve your speed?** (Suggested answers: **Practice with a timer, touch type.**)

## LESSON 3 pp. 18–19

# Components of computer systems

## OBJECTIVES

- Explain the main components of computer systems.
- Identify input, output, and data.
- Describe different types of computer hardware.

## LIFE SKILLS

- Learning to do: collaboration
- Learning to know: creativity; problem solving

## VALUES

- Academic values: perseverance

## ISSUES AND CHALLENGES

- Issues of globalization: digital citizenship

## MATERIALS NEEDED

- A picture of a computer or a computer (Objectives)
- Paper and pens or pencils (Explore)
- Cards with the images of items mentioned in the tables on page 19 (Teaching Tip)

## LESSON 3 Components of computer systems

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

• Explain the main components of computer systems.	<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work
• Identify input, output, and data.	<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work
• Describe different types of computer hardware.	<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work

### Engage

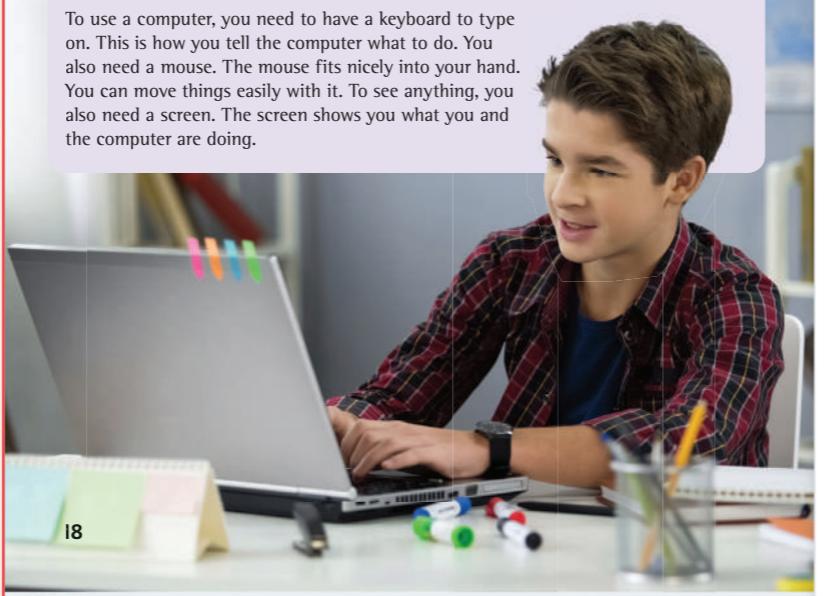
How can you use technology in your daily life? What do you need to know?

### Learn

The computer is an electronic device for processing data. It can store information, restore it and process it. You might know that you can use a computer to write documents, send emails, play games and browse the internet. But you can also use it to edit or create data tables, PowerPoint® presentations, and even videos.

The shape of the computer and its components also differ according to the device's model and its manufacturing date. A personal computer differs from the laptop or the tablet. In addition, there are devices that are turned on and used via touch.

To use a computer, you need to have a keyboard to type on. This is how you tell the computer what to do. You also need a mouse. The mouse fits nicely into your hand. You can move things easily with it. To see anything, you also need a screen. The screen shows you what you and the computer are doing.



## OBJECTIVES

**AIM:** To engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, brainstorm different components of a computer. You could show a picture of a computer or refer to one in your classroom if possible. Try to elicit key words from the text that follows, i.e. computer case, keyboard, mouse, monitor, speakers, camera, microphone.

- Follow the steps for **Routine 1: Time to Explore!**
  - Give students a minute to look at the lesson and assess what they'll explore.
  - Elicit answers from individual students, e.g.: **Now's our chance to... learn about different parts of a computer!** (See objectives in the Lesson Plan.)

(Suggested answers: **Now's our chance to... explain the main elements of computer systems, understand input, output, and data, describe different types of computer hardware.**)

## ENGAGE

**AIM:** To think about their own experience and knowledge of technology and ways to communicate.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**.

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, which technology do you think is the most useful in Mr. Lin's work? <Name>, which technology do you use the most to do your school work? Is it important to know what makes up the technology you use? Why do you think that? Can you give an example? Etc.**

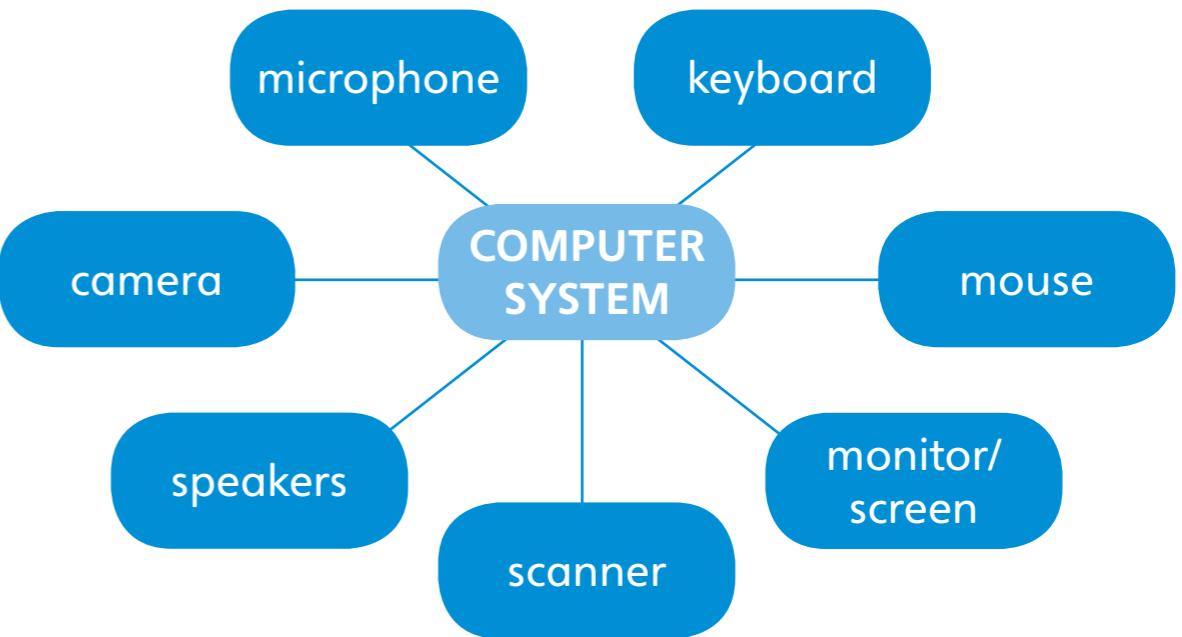
- Remind students to give a reason for their opinion.

## LEARN

**AIM:** To learn about the main components of computer systems. To help students achieve the lesson Objective(s) by organizing the new information they have learned.

**TIME:** 15–20 minutes

### Answers:



### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Displaying the components of a computer system for integrated SEND students for them to able to learn their names and functions better.	- Supporting students by asking their classmates to help them write.	- Describing pictures for the blind and displaying them zoomed for the weak sighted.			
- Writing the components of a computer system on the board.	- Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible.	- Allowing visually impaired students to determine the components of a computer system through touch.			
- Supporting the mind map about the components of a computer system with pictures and written expressive sentences.	- Including them in groups and giving them tasks according to their disabilities.	- Including them in groups and giving them tasks according to their disabilities.			

You may also want to have speakers to hear, a camera for people to see you and a microphone so they can hear you.

You can also prepare your own video or photo album, using one of the applications on your device (personal computer, laptop, tablet) by taking pictures or a video.

It is also important to understand the flow of information into or out of computer systems. For example, as users, we put data into a system using the keyboard. The system gives us information on the screen. We divide computer hardware into input and output devices.

Input	
Type of hardware component	Type of input data
Keyboard	Letters and numbers
Mouse or touchscreen	Directional data
Microphone	Sound and music
Camera	Images or video
Scanner	Text and images from paper

Output	
Type of hardware component	Type of output data
Screen	Visual information: text, images and video
Braille terminal	Text in Braille for blind people
Speaker	Audio
Speech synthesizer	Audio
Printer	Text and images on paper

The most important element of the computer system is you! Computers are only as good as the data we put in them. Users can also connect devices in the wrong way or use them incorrectly which produces an error, so be careful when connecting devices to your computer.

#### Explore

How many of the devices have you used before? Work with a partner. Think of other computer hardware. Do they provide input or output?

#### Review

1. Describe the main hardware components of computer devices and their purpose.
2. What do you think the most useful hardware components of a computer device are for an archaeologist?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can ...** box.

19

## BE THE EXPERT

One of the first computers was an abacus. It was invented in Babylon in 500 B.C. and it was made of string and beads. An abacus was used to count and keep track of money and other things. In 1833, Charles Babbage invented all the parts a modern computer uses, but it wasn't until 120 years later that the first modern computers were invented. These first computers were huge and took up a whole room. Computers have memory or RAM, which stores items on the computer when they are not in use. The processor stores everything your computer needs to run. As computers run, they get hot. Computers have fans to keep them cool.

#### TEACHING TIP

To test students' understanding of the different types of computer hardware explored in this lesson, prepare cards with the images of items mentioned in the tables on page 19, for example: a mouse, speakers, a microphone, etc. Show the pictures and ask students to name the item. Students say whether the items provide input or output data.

## HOME-SCHOOL CONNECTION

#### Life skill:

Learning to do: collaboration  
If students have a computer at home, they can teach their family about the main elements of computer systems, the types of computer hardware, and the difference between input and output.

## EXPLORE

**AIM:** To think about electronic devices and the difference between input and output in computer hardware. To enable students to work quickly, creatively, and collaboratively to generate ideas; to lead an activity based on their ideas to meet the objectives.

**TIME:** 5–10 minutes

- Introduce the topic. Say **Now we're going to think about devices and the difference between input and output.**
- Follow the steps for **Routine 13: Brainstorm.**
  1. Introduce Explore. Read the task aloud. (See the Lesson Plan.)
  2. Say **Now we're going to think of lots of ideas, quickly, without stopping!**
  3. Have students sit with a partner.
  4. Say **One of you needs a piece of paper and a pen (or pencil). He or she will write your ideas down on the paper.**
  5. Say **You have 1–2 minutes to write down all the ideas you can think of! Don't stop!**
  6. Say **Go!** The activity begins. After one or two minutes, call **Stop!**
  7. Give the students time to read the ideas on their piece of paper.
  8. Ask **What ideas did you think of? Tell the class the devices you have used.** Lead a group discussion based on their brainstorm ideas. Board the word **DEVICES** and start a mind map with the students' suggestions. Next, draw two new mind maps with **INPUT** and **OUTPUT** in the middle. Board students' ideas accordingly. If students struggle, be prepared with some examples of hardware, e.g. modem (**input**), headphones (**output**),

**OPTIONAL:** Play a team game where one team says the name of a computer component and the other team must say if it is input or output, e.g. Team A says **mouse**, Team B must respond **input** to score a point.

## LIFE SKILLS

Praise some or all students for being creative. Explain that they will use this skill throughout the lesson.

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** to be completed at home

- Follow the steps for **Routine 16: Family test.**
  1. Draw students' attention to Review.
  2. Say **You're going to ask a family member to test you on your knowledge.**
  3. Say **Someone in your family will ask you these questions. Tell them everything you know!**

(Suggested answers: **1. See tables on page 19;**  
**2. He or she might use a keyboard to input data, a mouse to move around the screen, a touchscreen instead of a mouse, a scanner to make digital images, a digital camera to take pictures of what he or she sees.**)

**OPTIONAL:** In the next lesson, ask students to tell the class what they remembered and what they still need to work on.

- At the end of the section, say **Well done! You've learned a lot this lesson!**

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; to encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine 17: 3–2–1**
- OPTIONAL:** Elicit some ideas from students and write them on the board, e.g.: **I'm very proud about how much I remembered in the Review exercise.**
- Next lesson, clarify any questions that students still have.

## LESSON 3 pp. 20–21

### Learn by doing

#### COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

##### 1 Look and write

- Ask **What are some computer accessories that we saw in this lesson?** Allow students to look back at the lesson for possible answers.
- Read the task out loud. Look at the words in the word box. Then say **Now label the computer.** Allow students to complete this task in pairs or small groups before checking as a class.

##### Answers:



**AIM:** To consolidate what they know and identifying gaps in knowledge.

**TIME:** 5–10 minutes

##### 2 Think and write

- Read the question out loud. If students struggle, you can do the first one together as an example and give the first letter of each missing word.
- Say **Now write the missing words.** Allow students to look back in the Student Book for answers. They can compare answers with peers. Nominate students for answers and invite them to complete the chart on the board.

### Learn by doing

## LESSON 3 Components of computer systems

#### Comprehension

##### 1 Look and write

Label the computer and its components with the words in the box.

keyboard  
scanner  
mouse  
screen  
printer  
speaker



##### 2 Think and write

What is the function of each component of the computer above? Complete the chart.

Functions	Components
Allows interaction with, and selection of, information	mouse
Displays visual data: texts, images, and videos	screen
Allows input of images	camera
Allows input of text	keyboard
Allows input of text and images from paper	scanner
Allows output of text and images on paper	printer
Allows input of audio	microphone
Allows output of audio	speaker

## ISSUES AND CHALLENGES

**AIM:** To consider issues of globalization and become better digital citizens.

**TIME:** 10–15 minutes

##### 3 Look and write

Devices can also include components to help people of determination. Read the descriptions below and write the name of the component. Then answer the question.

1. This component allows blind people to use computers.

2. This component allows non-verbal people to speak.

##### 4 Think and write

What other computer components might be helpful for people of determination? How can they help?

#### ICT and me

##### 5 Think and answer

Read the questions below and think about your family, your home and your school. Discuss your answers with a partner and then write.

1. Do your family and friends use computers? What do they use them for?

2. When might you use the following components on a device?

Camera: \_\_\_\_\_

Microphone: \_\_\_\_\_

Speaker: \_\_\_\_\_

3. Which component do you think is more useful: a printer or a scanner? Why?

4. Lots of modern electronic devices have very small computers or computer components in them! For example, many new cars have computer components which can tell the driver if there is a problem with the engine. Can you think of some other devices which aren't computers but use computer components?

#### Answers:

Functions	Components
Allows interaction with, and selection of, data	mouse
Displays visual data: texts, images, and videos	screen
Allows input of images	camera
Allows input of text	keyboard
Allows input of text and images from paper	scanner
Allows output of text and images on paper	printer
Allows input of audio	microphone
Allows output of audio	speaker

3. Say **Now copy the answers in your books.**

**OPTIONAL:** Ask students to match the accessories in Exercise 1 Look and write to each description.

## EXTENSION ACTIVITIES

1. Ask students to do online research on where and how computer components are actually made.

2. Ask students to draw or describe their dream computer. What hardware features would it have? Which software programs would it include?

**AIM:** To consider issues of globalization and become better digital citizens.

**TIME:** 10–15 minutes

##### 3 Look and write

1. Read through the instructions. Deal with any new words as needed.

2. Encourage students to find images of the components and say why they are important.

(Answers: 1. Braille terminal; 2. Speech synthesizer)

##### 4 Think and write

1. Read through the instructions.

2. Encourage students to be creative and think of useful components even if they might not exist (yet).

(Suggested answers: A text reader for the visually impaired; a screen that detects eye movement for people who cannot use a mouse or touch pad.)

## ICT AND ME

**AIM:** To personalize the topic and consider how computer systems affect them and their world.

**TIME:** 5–10 minutes

##### 5 Think and answer

1. Say **Sit with a classmate, shoulder to shoulder. Discuss the questions together.** Students discuss the questions in pairs.

2. Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.

3. Elicit some answers from the class. Board these and compare ideas.

**OPTIONAL:** If students struggle with Question 4, be prepared with some prompts (see possible answers).

(Suggested answers: 1. Students' own answers; 2. Camera: take pictures for school projects; Microphone: record your voice to rehearse a speech or improve your pronunciation; Speaker: listen to a podcast or webinar; 3. Students' own answers; 4. microwaves, air conditioning, cell phones, fitness watches.)

## LESSON 4 pp. 22-23

# Software and operating systems

### OBJECTIVES

- Explain the basic functions of operating systems and software.
- Explain the difference between hardware and software.

### LIFE SKILLS

- Learning to be: communication
- Learning to know: creativity

### VALUES

- Work values: collaboration

### ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

### MATERIALS NEEDED

- Paper and pens or pencils (Explore and ICT and me)

## LESSON 4 Software and operating systems

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Explain the basic functions of operating systems and software.
- Explain the difference between hardware and software.

Very well    OK    Need more work  
Very well    OK    Need more work

### Engage

How does a computer communicate and complete your commands?

### Learn

We do many things with our devices. We play games, write notes, and go on the internet. But how does that all happen?

Imagine you want to write a report for school. Once you log on to the computer, what do you do? The first thing you need to do is to ask the computer to do something. You might open a word processing program like Microsoft® Word which is a type of software. This application tells the computer's operating system, which is another type of software, like Windows®, to access the program and open it.

But that is only what you see happen. There is another key step that you do not see. The operating system talks to the Central Processing Unit (CPU). The CPU is a type of hardware. It controls what and how data is processed. This means that as you type, the program tells the operating system, which then asks the CPU to show this information on the screen. If the program has a problem before the operating system tells the CPU to save everything, you can lose your work. It is important to remember to save your work regularly.



### OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths and think about what they already know about software and operating systems.

**TIME:** 2–3 minutes

- Follow the steps for **Routine 2: What do I Need to Do**

(Suggested answers: **I need to pay attention to... basic principles of operating systems and software, the definition of hardware and software, the difference between the two!**)

- Say **By the end of the lesson, you'll be able to do all these things!**

## ENGAGE

**AIM:** To think about how computers communicate and execute commands.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**.
- Allow a variety of answers provided these all relate to the Engage question:

(Suggested answers: **A computer uses special language to communicate. It carries out our commands thanks to the input we provide.**)

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, what sort of commands can we give our computer? Can you give an example? Etc.**

- Remind students to give a reason for their opinion.

## LEARN

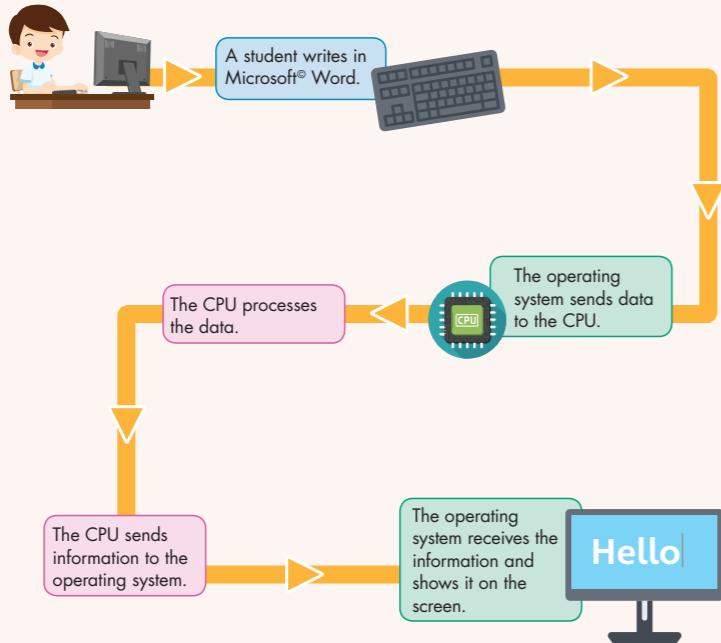
**AIM:** To learn about computer operating systems.

**TIME:** 15–20 minutes

- Say **Now we're going to read about steps that occur when using a computer. By the end, we'll be able to say what happened in each.**
- Follow the steps for **Routine 7: K-W-L Chart**.

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Writing the vocabulary (Microsoft - CPU) on the board or highlighting them in the Student's Book. - Using visual flowcharts based on the continuity and sequence of the practical procedural steps of writing in Microsoft Word.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.	- Describing the diagram about inputting data into a Microsoft Word program.			

The diagram below shows how data is processed in Microsoft® Word.



#### Explore

Work in groups to create a diagram similar to the above. It should show what happens at each stage when you are playing a game, using Microsoft® PowerPoint®. Label each step of the process with software or hardware, or both.

#### Review

1. What are the differences between hardware and software?
2. How would you explain how computers work to someone else?

#### Self-assess

Go to the Objectives at the beginning of the lesson.  
Check the correct **I can ...** box.

23

## EXPLORE

**AIM:** To create a diagram to show stages in a computer operating system; to enable students to work quickly, creatively, and collaboratively to generate ideas; to lead an activity based on their ideas to meet the objectives.

**TIME:** 5–10 minutes

- Introduce the topic. Say *Now we're going to create a diagram!*
- Follow the steps for **Routine I3: Brainstorm**.
- At the end, ask *What ideas did you think of? Tell the class about your diagram.* Have each group present their ideas and show their diagrams. Make sure everyone in the group contributes to the work. During the presentations, encourage the audience to ask questions about the diagrams. Praise each group for their efforts at the end of each presentation.

**OPTIONAL:** Display the groups' drawings on the wall and have a gallery walk. Students can then vote for the best diagram.

## LIFE SKILLS

Ask students how we can communicate effectively  
(Suggested answers: **We need both verbal and non-verbal skills**).

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** to be completed at home

- Follow the steps for **Routine I6: Family test**.  
(Suggested answers: **I. Hardware is the computer's physical parts. Software is the programs, or instructions, that tell the hardware what to do; 2. Students' own answers.** Refer them to the flow chart for support.)
- At the end of the section, say *Well done! You've learned a lot this lesson!*

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine I7: 3–2–1**.

**OPTIONAL:** Elicit some ideas from students and write them on the board, e.g. *I'm very proud about how much I remembered in the Review exercise.*

## BE THE EXPERT

There are two basic types of computer software: the operating system and application software. The operating system manages the different parts of hardware. Application software tells the computer what to do, like writing a document or playing games.

### TEACHING TIP

To test students' understanding of the difference between hardware and software, give examples of both and ask students to classify them accordingly.

### HOME-SCHOOL CONNECTION

**Life skill:** Learning to know: creativity

Ask students to show their families the diagrams their group made in Explore. Students can explain what happens at each stage when they are playing a computer game.

## LESSON 4 pp. 24–25

### Learn by doing

#### COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

##### 1 Look and complete

- Refer students to the words in the word box and deal with any difficult terms.
- Read the task out loud. Allow students to complete this task alone before comparing with peers.

#### Answers:

Hardware	Operating systems	Application software
CPU	Windows®	gaming apps
keyboard		PowerPoint®
screen		Microsoft Word®
		Google Chrome™ browser

##### 2 Read and match

- Refer students to the images and elicit what each one shows.
- Read the task out loud. Allow students to complete this task alone before comparing with peers.

(Answers: 1c; 2a; 3d; 4b)

### Learn by doing

## LESSON 4 Software and operating systems

#### Comprehension

##### 1 Look and complete

Write the words from the box in the correct column.

CPU      gaming apps      Google Chrome™ browser      keyboard  
PowerPoint®      Microsoft Word®      screen      Windows®

Hardware	Operating systems	Application software
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

##### 2 Read and match

Read the steps and match them to the images. Write the letter.



- You open the program and start typing.
- The program receives the data and tells the operating system. The operating system interprets the data.
- The Central Processing Unit receives the data from the operating system. It processes the data and sends it back to the operating system.
- After the operating system sends the information to the program, the program puts the information on the screen.

24

#### ICT and me

##### 3 Think and draw

You are playing a game on your computer. Draw and label the relationship between you, the game application, the operating system, and the CPU.



##### 4 Think and answer

Imagine you are transported back in time to before computers (PCs, laptops) were invented! How would you explain to them the importance of a computer, how this technology spread and how it works?



## ICT AND ME

**AIM:** For students to personalize the topic and show an understanding of the relationship between a game application, the operating system, and the CPU.

**TIME:** 5–10 minutes

##### 3 Think and draw

- Read the task aloud.
- Say **Now you're going to work with your friends!**
- Have students sit in groups of three.
- Say **One person in the group needs a piece of paper and a pen (or pencil). He or she will write your group's ideas down on the paper. Another person in the group can draw the different parts of your diagram.**

**OPTIONAL:** Have groups exchange their work.

##### 4 Think and answer

- Say **Sit with a classmate, shoulder to shoulder. Discuss the question together.** Students discuss the question in pairs.
- Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
- Elicit some answers from the class. Have students roleplay the conversation they would have with someone from the past.

## EXTENSION ACTIVITIES

- Ask students to do online research on how gamers develop online games.
- Ask students to ask their parents and grandparents what games children played before computers and video games were invented.

## LESSON 5 pp. 26–27

# Supporting people of determination

### OBJECTIVES

- Explain what assistive technology is.
- Discuss how technology improves the life of people of determination.
- I can suggest a technology that could improve people's lives.

### LIFE SKILLS

- Learning to know: creativity
- Learning to live together: empathy; respect for diversity

### VALUES

- Co-existence values: respect; tolerance and acceptance

### ISSUES AND CHALLENGES

- Non-discrimination issues: discrimination against people with special needs

### MATERIALS NEEDED

- Paper and pencils (Explore)

## LESSON 5 Supporting people of determination

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

• Explain what assistive technology is.	Very well	OK	Need more work
• Discuss how technology improves the life of people of determination.	Very well	OK	Need more work
• I can suggest a technology that could improve people's lives.	Very well	OK	Need more work

### Engage

How can technology help people of determination?

### Learn

#### Assistive technology

We all use technology to help us in our daily life. There is also special type of technology called "assistive technology". Assistive technology helps people of determination with tasks that they find difficult.

Albert Lin has a limb difference but he doesn't let that stop him. He still does all of the things he did before including exploring many places around the world. He wouldn't be able to do this without the assistive technology of his prosthetic leg.



26

## ENGAGE

**AIM:** To engage students in a discussion that leads to a lesson objective or life skill; to use critical thinking to investigate clues in photos.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 5: Photo Detectives!**
  - Draw students' attention to Engage. Tell students to cover the photo with a book.
  - Read the Engage question aloud. Establish the meaning of people of determination (See the Lesson Plan.)
  - Elicit some quick answers from the class.
  - Say **You're going to be photo detectives!** *Uncover the photo and look for clues!*
  - Say **Sit knee to knee. Investigate the photo. Tell each other what you find.**
  - Read the Engage question aloud again. Elicit answers from individual students. If students struggle, point out the artificial leg and ask how technology can help to make prosthetics.

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, how could technology help someone who cannot see or hear? Can you give an example? Etc.**

- Remind students to give a reason for their opinion.

## LEARN

**AIM:** To enable students to read text in a way that maintains their interest; to help students improve their own reading ability.

**TIME:** 15–20 minutes

- Say **Now we're going to read about assistive technology.** By the end, we'll be able to explain what assistive technology is and how technology improves the lives of people of determination.
- Follow the steps for **Routine II: Buddy Reading.**
  - Form pairs. Students sit with a classmate, preferably with a similar reading ability, shoulder to shoulder.
  - Say **You're Reading Buddies.** That means you're reading friends, so your job is to help each other. You're going to take turns reading the text to each other. If you're reading, remember you can ask for support from your Reading Buddy, or even ask them to take over for a while. I'll be moving around the classroom if you need me.
  - Point to the section of text that you want them to read to each other. Say **Please read this part to your Buddy. When you hear me call "My Turn!", that means I'm going to read aloud for a while. Then I'll stop and you can read together again.**
  - Reading Buddies work together in pairs. Monitor as you move around the room.
  - To speed up the lesson, shout **My Turn!** and read a section aloud. Then hand over the next section to the buddies. Continue alternating like this, so that they receive practice listening to you, as well as to each other.

**OPTIONAL:** After they finish reading, ask some more questions, e.g. **Who uses assistive technology? People of determination. What are some examples of assistive technology? screen magnification software; hearing aids; alternate communication software; sporting tools.**

### OBJECTIVES

**AIM:** To engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

**OPTIONAL:** To better frame the theme of the lesson, board the term **PEOPLE OF DETERMINATION.** Elicit the meaning from students and ask what special needs these people might have, e.g. they might be visually impaired, or be hard of hearing or suffer from dyslexia. Ask students if they know any people of determination and be prepared to give an example of your own if students are unable or unwilling to respond.

- Follow the steps for **Routine I: Time to Explore!** (Suggested answers: **Now's our chance to... learn about assistive technology, discuss how technology improves the lives of people of determination, suggest a technology that could improve people's lives.**)

**Explore**  
Think like an inventor! Imagine a new product that could help people of determination. Draw a picture of your invention. Describe what it would do and why it would be helpful.

**Review**

1. What are the different ways technology has helped people of determination?
2. How can we make the lives of people of determination better beyond just technology?

**Self-assess**  
Go to the Objectives at the beginning of the lesson.  
Check the correct **I can . . .** box.

27

## EXPLORE

**AIM:** To suggest a technology that could improve people's lives. To enable students to work quickly, creatively, and collaboratively to generate ideas. To lead an activity based on their ideas to meet the objectives.

**TIME:** 5–10 minutes

- Introduce the topic. Say **Now we're going to think like inventors!**
- Follow the steps for **Routine I3: Brainstorm.**
  1. At the end, ask **What ideas did you think of?** **Tell the class about your inventions.** Have each group present their ideas and show their drawings. Make sure everyone in the group contributes to the work.
  2. During the presentations, encourage the audience to ask questions about the inventions. Praise each group for their efforts at the end of each presentation.

**OPTIONAL:** Display the groups' drawings on the wall and have a gallery walk. Students can then vote for the most original / useful invention.

## LIFE SKILLS

Ask students why it is important to show empathy and respect for diversity.

(Suggested answers: **Understanding that each individual is unique, and recognizing each other's individual differences helps us to learn to live together.**)

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine I5: Test a Partner.**
- At the end of the section, say **Well done! You've learned a lot this lesson!**

**OPTIONAL:** In the next lesson, ask students to tell the class what they remembered and what they still need to work on.

## SELF-ASSESS

**AIM:** To evaluate their learning process and determine next steps.

**Time:** to be completed at home

- Follow the steps for **Routine I8: Promise!**

## BE THE EXPERT

The future of assistive technology is very promising and includes inventions such as the Internet of Things (IoT), which links all household appliances to your smartphone so those with a disability can easily control their household appliances through speech recognition; a car that can be driven by the blind; a stair-climbing wheelchair which allows you to travel up the stairs without the need of getting out of your wheelchair; walking assistance via GPS Signal: phone companies are already developing accessibility into the software on their GPS-enabled smartphones so that directions can be given to those with a visual impairment through audio.

### TEACHING TIP

To test students' understanding of the different types of assistive technology explored in this lesson, name a disability and ask students to tell you which kind of assistive technology could help.

### HOME-SCHOOL CONNECTION

**Life skill:** Learning to know: creativity

Ask students to show their families the drawings of their group's assistive technology invention from Explore. They should explain how it works and how it can help people of determination. Students can give their families other examples of assistive technology that they have learned about so far.

## LESSON 5 pp. 28–29

### Learn by doing

## COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

1 Discuss in pairs

1. Remind students that technology need not be electronic. Refer students to the pictures and elicit more examples of everyday technology, e.g. a TV, a hairdryer, a bicycle.
2. Read the question out loud. Look at the options. Then say **Now answer the question.** Allow students to complete this task alone before comparing with peers.

## ISSUES AND CHALLENGES

**AIM:** To consider issues of non-discrimination issues and discrimination against people with special needs.

**TIME:** 10–15 minutes

2 Think and answer

1. Read through the instructions. Deal with any new words as needed.
2. Encourage students to find images of these inventions or draw them.

(Suggested answers: 1. visually impaired; 2. visually impaired; 3. people who have trouble hearing; 4. visually impaired; 5. people who have a movement disability)

### Learn by doing

## LESSON 5 Supporting people of determination

### Comprehension

#### 1 Discuss in pairs

We all use technology every day. Look at the technologies below and circle the ones which you have used today. What did you use them for? Discuss with a partner.



A light pen



Glasses



A computer



An elevator



A cell phone



A car



A ball



A printer

### Issues and challenges

#### 2 Think and answer

How can each of these assistive technologies be useful for people? Who might find them most useful?

1. Sports balls that make a noise

\_\_\_\_\_

2. Cell phones with large buttons

\_\_\_\_\_

3. Hearing aids

\_\_\_\_\_

4. Screen magnification software

\_\_\_\_\_

5. Motorized wheelchairs

\_\_\_\_\_

28

### 3 Read and complete

Stephen Hawking was a famous scientist who used assistive technology to help him communicate. Read about how he made use of speech synthesizer technology and put the steps in order.

- a. When I have made a sentence, the computer sends it to a speech synthesizer.
- b. I look at a screen. There are words on the screen.
- c. I can press a switch in my hand. In this way, I select the words.
- d. The speech synthesizer changes the words into an artificial voice, so people can hear what I want to say!
- e. I can't speak so I communicate using a computer system in my wheelchair.



Stephen Hawking

### ICT and me

#### 4 Think and answer

People of determination can have difficulty doing some tasks, but assistive technology can help them enjoy the same activities as everyone else. Read and answer the questions.

What are three things that you enjoy doing?	Why might this activity be difficult for a person of determination?	What kinds of technology might help a person of determination to do this activity?

What can you do to help people of determination?

### 3 Read and complete

1. Read the first line of the rubric and refer to the picture of Stephen Hawking. Then read the instructions and deal with any blocking vocabulary.

2. Students complete the task alone, then compare answers with peers before whole class check.

(Answers: a4 b2 c3 d5 e1)

## ICT AND ME

**AIM:** To personalize the topic and develop empathy and respect for diversity.

**TIME:** 5–10 minutes

4 Think and answer

1. Say **Sit with a classmate, shoulder to shoulder. Discuss the questions together.** Students discuss the questions in pairs.

2. Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.

3. Elicit some answers from the class. Board these and compare ideas.

**OPTIONAL:** Do the first row as an example with the whole class.

(Suggested answers: 1. Playing video games; 2. They may not be able to see the images or hear the sounds; 3. screen magnification software and hearing aids)

## EXTENSION ACTIVITIES

1. Ask students to do online research on assistive technology that is being developed for the future.

2. Ask students to interview someone they know who uses assistive technology and ask them how this has helped them and how this technology could be improved.

## Common ICT problems and solutions

### OBJECTIVES

- Discuss ICT problems I've experienced at school or at home.
- Discuss how people experience problems with technology.
- Suggest solutions to common ICT problems.

### LIFE SKILLS

- Learning to know: creativity; problem solving

### VALUES

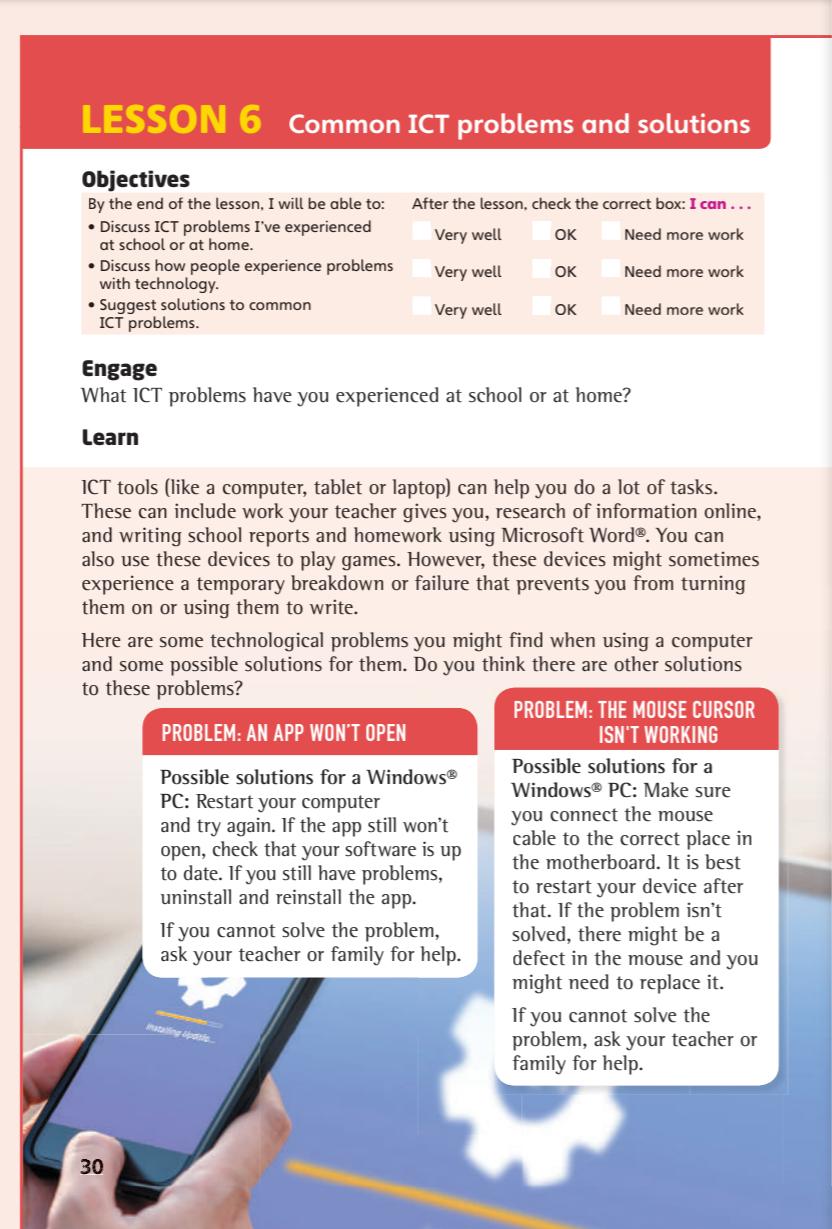
- Learning to do: perseverance

### ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

### MATERIALS NEEDED

- Paper and pencils (ICT and me)



**LESSON 6 Common ICT problems and solutions**

**Objectives**

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Discuss ICT problems I've experienced at school or at home.
- Discuss how people experience problems with technology.
- Suggest solutions to common ICT problems.

**Engage**  
What ICT problems have you experienced at school or at home?

**Learn**

ICT tools (like a computer, tablet or laptop) can help you do a lot of tasks. These can include work your teacher gives you, research of information online, and writing school reports and homework using Microsoft Word®. You can also use these devices to play games. However, these devices might sometimes experience a temporary breakdown or failure that prevents you from turning them on or using them to write.

Here are some technological problems you might find when using a computer and some possible solutions for them. Do you think there are other solutions to these problems?

**PROBLEM: AN APP WON'T OPEN**

Possible solutions for a Windows® PC: Restart your computer and try again. If the app still won't open, check that your software is up to date. If you still have problems, uninstall and reinstall the app. If you cannot solve the problem, ask your teacher or family for help.

**PROBLEM: THE MOUSE CURSOR ISN'T WORKING**

Possible solutions for a Windows® PC: Make sure you connect the mouse cable to the correct place in the motherboard. It is best to restart your device after that. If the problem isn't solved, there might be a defect in the mouse and you might need to replace it. If you cannot solve the problem, ask your teacher or family for help.

### OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths and think about what they already know about technology.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, brainstorm different experiences and problems we might face with technology.

- Follow the steps for **Routine 2: What Do I Need to Do?**

1. Draw students' attention to the Lesson topic. Say **This lesson we're going to learn about common ICT problems and solutions.** (See the Lesson Plan.)

2. Read the objectives aloud to the class.

**OPTIONAL:** Ask **Which objectives can you already do?** Elicit some ideas.

## ENGAGE

**AIM:** To think about their own experience and knowledge about technology and ways to communicate.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share.**
- Allow a variety of answers provided these all relate to common problems with technology: (Suggested answers: **The audio doesn't work; the computer is slow; my apps crash.**)

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, how do you solve ICT problems? <Name>, is it better to ask someone for help or try to solve ICT problems ourselves? Why do you think that? Can you give an example? Etc.**

- Remind students to give a reason for their opinion.

## LEARN

**AIM:** To learn about problems with technology and possible solutions.

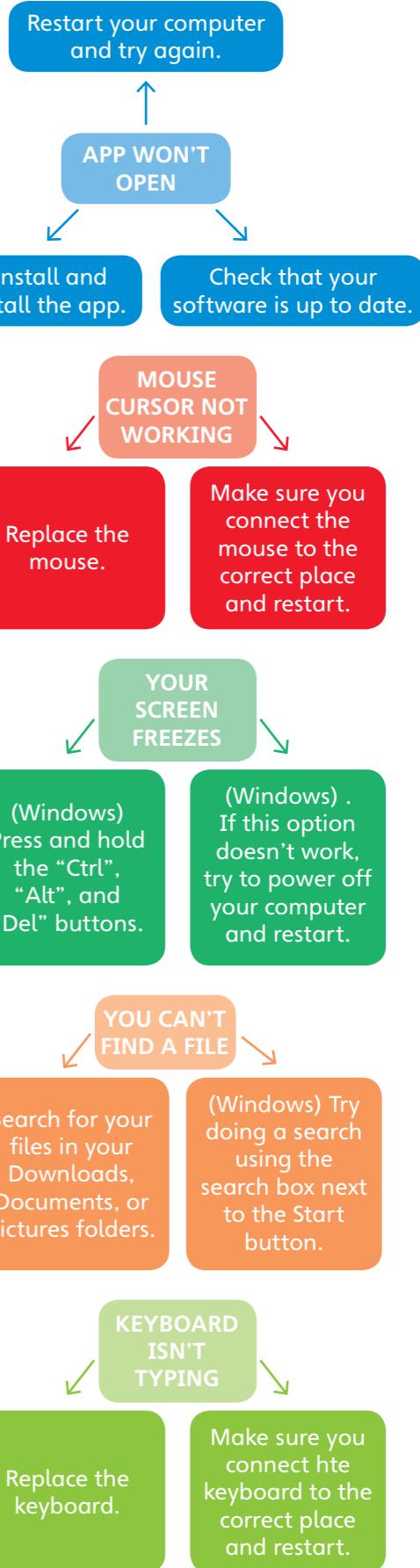
**TIME:** 15–20 minutes

- Say **Now we're going to read about different problems with technology. By the end, we'll be able to say how we can solve each one.**
- Follow the steps for **Routine 4: Mind mapping.**
  - Draw students' attention to Learn.
  - Board **ICT PROBLEMS AND SOLUTIONS.** Draw three big boxes in the center of the board and say **Read about problems with technology and their solutions. Write these in the Mind Map.** (See the Lesson Plan.)
  - Have students read the information in Learn. Pause at useful points in the text and add to the information in the Mind Map on the board. (See the Lesson Plan.) The aim is to visually organize what students learn about the topic. See the answers below.

**OPTIONAL:** After they finish reading, ask some more questions, e.g. **Have you ever had any of these problems? How did you solve the problem? Why is it useful to know how to solve these problems?** (Suggested answers: **We can use our problem solving skills and be independent.**)

**OPTIONAL:** Say **Now copy the mind map in your notebook or on a piece of paper.**

## Answers:



#### PROBLEM: YOU CAN'T FIND A FILE

Possible solutions for a Windows® PC:

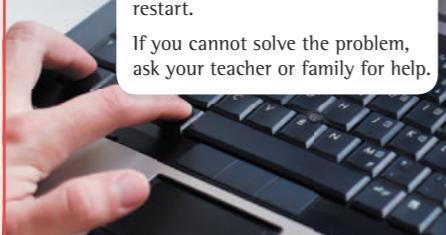
Check your Downloads folder. If you're looking for a Microsoft® Word file, look in your Documents folder. If you're looking for a photo, look in your Pictures folder. Or, try doing a search using the search box next to the Start button.



If you cannot solve the problem, ask your teacher or family for help.

#### PROBLEM: YOUR SCREEN FREEZES

Possible solutions for a Windows® PC: Press and hold the "Ctrl", "Alt", and "Del" buttons together. If this option doesn't work, try to power off your computer and restart.



If you cannot solve the problem, ask your teacher or family for help.

#### PROBLEM: THE KEYBOARD ISN'T TYPING

Possible solutions for a Windows® PC: Make sure you connect the keyboard cable to the correct place in the motherboard. It is best to restart your device after that. If the problem isn't solved, there might be a defect in the keyboard and you might need to replace it.

If you cannot solve the problem, ask your teacher or family for help.

#### Explore

Interview classmates. Ask them what ICT problems they have experienced at school or at home. Then choose one of the problems and think of ways to solve it.

#### Review

1. What advice would you offer your classmates when using technology?
2. What would you do if your school or home computer had a problem you couldn't solve?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

31

## EXPLORE

**AIM:** To learn about problems with technology and how to trouble shoot.

**TIME:** 5–10 minutes

- Introduce the topic. Say [Now we're going to think about how to solve ICT problems](#).
- Follow the steps for [Routine I4: The 2 to 4 Discussion](#).

**OPTIONAL:** Introduce more critical thinking by asking students if they came up with the same solution and which is better.

## LIFE SKILLS

Praise some or all students for their ability to solve problems and queries. Explain that they will use this skill during the lesson.

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

- Follow the steps for [Routine I5: Test a partner](#).
- At the end of the section, say [Well done! You've learned a lot this lesson!](#)

**OPTIONAL:** Ask students to share their answers and vote for the best ones.

## SELF-ASSESS

**AIM:** For students to evaluate their learning process and determine next steps.

**TIME:** to be completed at home

- Follow the steps for [Routine I8: Promise!](#)

## BE THE EXPERT

There are many basic troubleshooting techniques you can use to fix ICT issues.

- Write down each step you take so you can remember exactly what you've done.
- If your computer gives you an error message, be sure to make a note of the message. Other people might have the same error.
- If you're having trouble with a specific piece of computer hardware, such as your monitor or keyboard, make sure all cables are properly connected.
- Restarting the computer can solve a lot of basic issues as a last resort.

## TEACHING TIP

To test students' understanding of the technological issues explored in this lesson, mention an ICT problem, e.g. the screen freezes. Ask students to troubleshoot and offer a solution. Students could roleplay conversations between the user and the ICT troubleshooter.

## HOME-SCHOOL CONNECTION

**Life skill:** Learning to know: creativity; problem solving

Students can ask family and friends if they have any issues with technology. Then, students can offer to troubleshoot and share what they have learned in this lesson about problems with ICT and solutions.

## LESSON 6 pp. 32–33

### Learn by doing

#### COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 10–15 minutes

##### 1 Look and complete

- Refer students to the table and deal with any difficult terms.
- Read the task out loud. Then say **Now complete the table.** Allow students to complete this task alone before comparing with peers.

##### Answers:

Solution	Problem
Press and hold the “Ctrl”, “Alt”, and “Del” buttons.	<b>your screen freezes</b>
Do a search using the search box next to the Start button.	<b>you can't find a file</b>
Restart your computer and try opening it again.	<b>an app won't open</b>
Uninstall and reinstall the app.	<b>an app won't open</b>

##### 2 Read and answer

- Read through the instructions and the different scenarios. Deal with any new words as needed.
- Students can work through each scenario with a partner or you could assign scenarios to different pairs or groups of students. Monitor as students work through their scenarios and support as needed.

### Learn by doing

## LESSON 6 Common ICT problems and solutions

#### Comprehension

##### 1 Look and complete

Decide what the problem is based on the solution provided.

Solution	Problem
Press and hold the “Ctrl”, “Alt”, and “Del” buttons.	
Do a search using the search box next to the Start button.	
Restart your computer and try opening it again.	
Uninstall and reinstall the app.	

##### 2 Read and answer

Suggest solutions to these ICT problems.

- Sara is doing her homework on her Windows® PC. Suddenly, the screen freezes. She presses and holds the “Ctrl”, “Alt”, and “Del” buttons, but that doesn't work. What else could she try to do?
- Maged wants to send a file to his friends, but he can't find it on his Windows® PC. What solutions could he try?
- Reem wants to listen to music on her favorite music app on her laptop. However, when she clicks on it, it doesn't open. What solutions could she try?

32

#### ICT and me

##### 3 Think and answer

Write about an ICT problem that you experienced before. How was it solved?

##### 4 Think, draw and answer

- Invent your own device! What does it look like? Draw a picture of it.

- What does it do? Write a short description.

- What are possible problems that someone using your device might experience?

- How can the problems experienced be solved?

#### ICT AND ME

**AIM:** To personalize the topic and consider issues with technology they have experienced and how to solve them.

**TIME:** 10–15 minutes

##### 3 Think and answer

- Say **Sit with a classmate, shoulder to shoulder. Discuss the question together.** Students discuss the question in pairs.
- Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.
- Elicit some answers from the class. Board these and identify any common ICT problems. Compare solutions and offer solutions for any unsolved issues.

**OPTIONAL:** Ask students to say which solution is the easiest / most effective.

##### 4 Think, draw and answer

- Read the questions aloud.
- Say **Now you're going to work with your friends!**
- Have students sit in groups of three.
- Say **One person in the group needs a piece of paper and a pen (or pencil).** He or she will write the description of the device on the paper. Another person in the group can draw the device. Another person can answer the questions about possible problems and solutions.
- Ask **What ideas did you think of?** **Tell the class about your devices.**

Have each group present their ideas and show their drawings. Make sure everyone in the group contributes to the work. During the presentations, encourage the audience to ask questions about the devices. Praise each group for their efforts at the end of each presentation.

**OPTIONAL:** Display the groups' drawings on the wall and have a gallery walk. Students can then vote for the most original / useful device.

#### EXTENSION ACTIVITIES

- Ask students to do online research on devices that are being developed for the future, for example a pen printer, a robot suitcase, an Instagram-focused camera, a 3D pen.
- Ask students to read the instruction manual for any device they have and find three functions they did not know about.

## Collecting, analyzing, and graphing data

### OBJECTIVES

- Identify digital tools that I can use to organize data.
- Present information on a student issue by collecting, analyzing, and graphing data.
- Discuss common student issues with my classmates.

### LIFE SKILLS

- Learning to be: communication
- Learning to live together: participation

### VALUES

- Academic values: objectivity

### MATERIALS NEEDED

- A variety of graphic organizers, e.g. a pie chart, a line graph, a mind map (Objectives)

## LESSON 7 Collecting, analyzing, and graphing data

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Identify digital tools that I can use to organize data.
- Present information on a student issue by collecting, analyzing, and graphing data.
- Discuss common student issues with my classmates.

Very well    OK    Need more work

Very well    OK    Need more work

Very well    OK    Need more work

### Engage

How can digital tools help you organize information?



### Learn

Scientists and archaeologists can search to solve problems. They collect, analyze and graph data. Below are some ways to collect, analyze and graph data.

**COLLECT** You can collect data from a variety of sources. Common sources include:

- books and articles (digital or print)
- records (such as logs and reports)
- surveys
- experiments

It is very important that you are certain that the information you are collecting is accurate. Always be sure to use sources that can be trusted.

**ANALYZE** When you analyze the data you've collected, you review your findings. Then you interpret what those findings mean. You can use the data to find out what happened, why it happened, what is likely to happen next, and what should be done.

You may have a lot of data. The best way to interpret a lot of data is to look for trends in the information.

34

## ENGAGE

**AIM:** To engage students in a discussion that leads to a lesson objective or life skill; to use critical thinking to investigate clues in photos.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 5: Photo Detectives!**

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, how do you organize information? What tools do you use? Can you give an example? Etc.**

- Remind students to give a reason for their opinion.

## LEARN

**AIM:** To enable students to read a text in a way that maintains their interest; to help students improve their own reading ability.

**TIME:** 15–20 minutes

- Say **Now we're going to read about ways to collect, analyze and graph data.**
- Follow the steps for **Routine II: Buddy Reading.**

**OPTIONAL:** After they finish reading, ask some more questions, e.g.: **What are some sources of information? Books and articles (digital or print), surveys, records (such as logs and reports), experiments. What's the best way to interpret data? Look for trends in the information. Why do we use graphs? To present and compare different categories of information.**

## OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths and think about what they already know about collecting, analyzing, and graphing information.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, show a variety of graphic organizers, e.g. a pie chart, a line graph, a mind map.

- Follow the steps for **Routine I: Time to Explore!**

(Suggested answers: **Now's our chance to...**

**learn about digital tools that we can use to organize information, collect, analyze, and graph information, discuss common student issues with my classmates.**)

### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
---	--------	--------------------	---------------------	-------------------------------------	------------------------

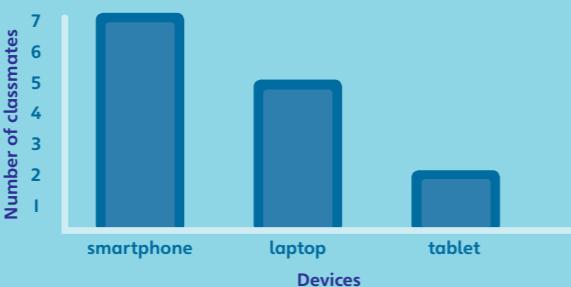
Making a model of a graphic organizer on a felt board and displaying data on it. Students can look at, or touch the model to understand it in the way that is best for them.

**GRAPH** Once you have analyzed the information you have collected, you are ready to graph the information. A common graph is a bar graph. Bar graphs clearly present and compare different categories of information. You can draw graphs on paper, or make them on a computer using software like Excel®.

**EXAMPLE** Nesma interviewed her classmates about what their favorite devices were. In total, she interviewed 14 classmates. She collected their answers and sorted them into groups. This is the information she analyzed:

- Seven classmates said their favorite device was a smartphone.
- Five students said their favorite device was a laptop.
- Two students said their favorite device was a tablet.

After Nesma analyzed the information, she graphed it:



#### Explore

Interview your classmates. Ask them what type of technology they find the most difficult to use. Using what you learned above, collect, analyze, and graph your information.

#### Review

1. Explain how you can collect, analyze, and graph data.
2. Discuss with your classmates possible solutions that can help make difficult types of technology easier to use.

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can ...** box.

35

## EXPLORE

**AIM:** To present information on a student issue by collecting, analyzing, and graphing information.

**TIME:** 5–10 minutes

- Introduce the topic. Say **Now we're going to think about what type of technology you find the most difficult to use.**
- Introduce the Explore topic. Read the task aloud. Ask them to name some technology they find difficult to use and board students' ideas. Be prepared with examples of your own if students struggle, e.g. a scanner.
- Follow the steps for **Routine I4: The 2 to 4 Discussion.**

**OPTIONAL:** Have students graph the information they have collected. They can use the bar graph in the Student Book as an example or any other type of graph so long as the data is clear.

## LIFE SKILLS

Praise some or all students for their participation. Explain that they will use this skill during the lesson.

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine I5: Test a partner.**
- At the end of the section, say **Well done! You've learned a lot this lesson!**

**OPTIONAL:** Ask students to share their answers to Question 2. Board possible solutions that can help make difficult types of technology easier to use and have students vote for the best one.

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; to encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine I7: 3–2–1.**

## BE THE EXPERT

Show students how to graph their data using basic software which is freely available. For example, demonstrate how to use the charting features of Word and Excel to present the data collected in Explore in a pie, line, or bar chart or graphical format.

### TEACHING TIP

To test students' understanding of the different ways to collect, analyze, and graph data explored in this lesson, ask students to summarize the different steps and what each one involves.

### HOME-SCHOOL CONNECTION

**Life skill:** Learning to be: communication; Learning to live together: participation

Ask students to interview their family. Then can ask them what type of technology they find the most difficult to use or what their favourite devices are. Then students can collect, analyze, and graph their information. They can share their findings with their family.

## LESSON 7 pp. 36–37

### Learn by doing

## COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 10–15 minutes

### 1 Look, circle and write

There are a variety of sources you can use to collect data, or gather information. Look at the types of sources below and circle the ones you have used.

- books
- articles
- reports
- surveys
- experiments
- interviews
- other \_\_\_\_\_

### 2 Think and answer

Were the sources you circled above in digital, print, or both?

## Research

### 3 Think and answer

Let's take a survey! First, prepare your survey with your teacher's help.

1. What will be the subject of your survey?

2. How will you present your information?

3. Choose friends, family members, or classmates to answer your survey questions. List the people you will speak to below.

4. Write the questions you will be including in your survey.

### 2 Think and answer

1. Read the question out loud. If students struggle, you can go over the sources and explain that they can be both digital or print.

2. Say **Now answer the question and write.** Students can compare answers with peers.

## RESEARCH

**AIM:** To put into practice the knowledge that students should have learned today.

**TIME:** 10–15 minutes if in class; or can be completed at home

### 3 Think and answer

1. Read the task out loud. Students can work in pairs or small groups.

2. Say **Decide on the subject of your survey.** Go through each step and support as needed. If students struggle, be prepared with some possible subjects and questions, e.g. **Which languages do you speak?** **How do you get to school?**, etc. If you assign this as homework, you could have different survey questions, e.g. **What time do you get up? Which is your favourite TV program?**

### Learn by doing

## LESSON 7 Collecting, analyzing, and graphing data

### Comprehension

### 1 Look, circle and write

There are a variety of sources you can use to collect data, or gather information. Look at the types of sources below and circle the ones you have used.

- books
- articles
- reports
- surveys
- experiments
- interviews
- other \_\_\_\_\_

### 2 Think and answer

Were the sources you circled above in digital, print, or both?

## Research

### 3 Think and answer

Let's take a survey! First, prepare your survey with your teacher's help.

1. What will be the subject of your survey?

2. How will you present your information?

3. Choose friends, family members, or classmates to answer your survey questions. List the people you will speak to below.

4. Write the questions you will be including in your survey.

36

### 4 Write a summary

Next, conduct your survey, and analyze the results. What are the key findings?

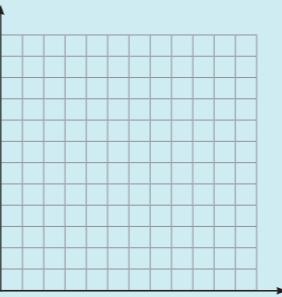
---

---

---

### 5 Make a graph

Use the information you analyzed to create a (digital or printed) graph, showing the results of your survey.



### ICT and me

### 6 Think and answer

Digital tools are useful when it comes to collecting, analyzing, and graphing data. Which of the following programs do you think are best for analyzing data? Why?

- a word processor (e.g. Microsoft Word®)
- presentation software (e.g. PowerPoint®)
- a spreadsheet (e.g. Excel®)

---

---

---

### 4 Write a summary

1. Model the task by referring to the graph in the Student Book and board sentences for the students to complete, e.g. **The favorite device is (the smartphone). The least favorite device is (a tablet).**

2. Have students write their summaries. Monitor and support as needed.

4. Students can then present their graphs and summaries to their peers or display their findings in class.

### 5 Make a graph

1. Read the question out loud and board the blank graph.

2. Refer students to the bar graph in the Student Book and ask **What information is on the line going up (the y-axis)?** (Suggested answer: **Number of classmates.**) **What information is on the line going across (the x-axis)?** (Suggested answer: **Devices they use.**)

3. Have students complete graphs for the data they have collected.

## ICT AND ME

**AIM:** To personalize the topic and consider which programs are best for analyzing data.

**TIME:** 5–10 minutes

### 6 Think and answer

1. Say **Sit with a classmate, shoulder to shoulder. Discuss the questions together.** Students discuss the questions in pairs.

2. Go around the classroom and listen to the pairs while they are talking. Give help, if needed. Make sure students are reviewing some previous knowledge.

3. Elicit some answers from the class. Board these and vote for the best ideas.

**OPTIONAL:** Ask students to graph the results of the discussion on which programs are best for analyzing data.

## EXTENSION ACTIVITIES

1. Ask students to research and try an online tool for collecting data, like Survey Monkey or Google Forms, or a tool for graphically representing data collected.

2. Ask students to find different examples of charts and graphs in magazines and newspapers.

## Reporting findings

### OBJECTIVES

- Discuss different ways to communicate electronically.
- Explain how to use different types of technology to communicate with others.
- Communicate electronically with students and teachers.

### LIFE SKILLS

- Learning to be: communication
- Learning to know: creativity; critical thinking

### VALUES

- Co-existence values: participation

### ISSUES AND CHALLENGES

- Issues of globalization: entrepreneurship

### MATERIALS NEEDED

- Paper and pencils (Explore)
- Images of ways of communicating electronically mentioned in the text on page 38 (Teaching Tip)

## LESSON 8 Reporting findings

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Discuss different ways to communicate electronically.
- Explain how to use different types of technology to communicate with others.
- Communicate electronically with students and teachers.

<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work
<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work
<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work

### Engage

Why is it important to be able to communicate electronically with others?

### Learn

Researchers report the information they gather in many different ways. Below are some ways archaeologists report their information:

- blogs
- published articles
- social media sites
- interviews
- TV programs

A common way to report data is through email. You can write a short report in an email and attach files related to it.



38

### OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths and think about what they already know about communicating electronically.

**TIME:** 2–3 minutes

**OPTIONAL:** To engage the students' interest, brainstorm different ways we communicate with others in our everyday lives, e.g. chat face to face, speak on the phone, via text / email, hand-written notes. Then have students say which is the most commonly used.

- Follow the steps for **Routine 2: What do I Need to Do?**

(Suggested answers: **I need to pay attention to... different ways to communicate electronically, how to use different types of technology to communicate with others, how to communicate electronically with students and teachers!**)

- Say **By the end of the lesson, you'll be able to do all these things!**

## ENGAGE

**AIM:** To think about their own experience and knowledge about technology and ways to communicate.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**.
- Allow a variety of answers provided these all relate to why it is important to be able to communicate electronically with others:

(Suggested answers: **We can't always meet with the person so we need an alternative way of communicating; Electronic communication is faster than sending letters; We can share images, documents and videos with electronic communication.**)

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **<Name>, which kind of electronic communication have you used? <Name>, which kind of electronic communication is your (least) favorite? Why do you think that? Can you give an example? Etc.**

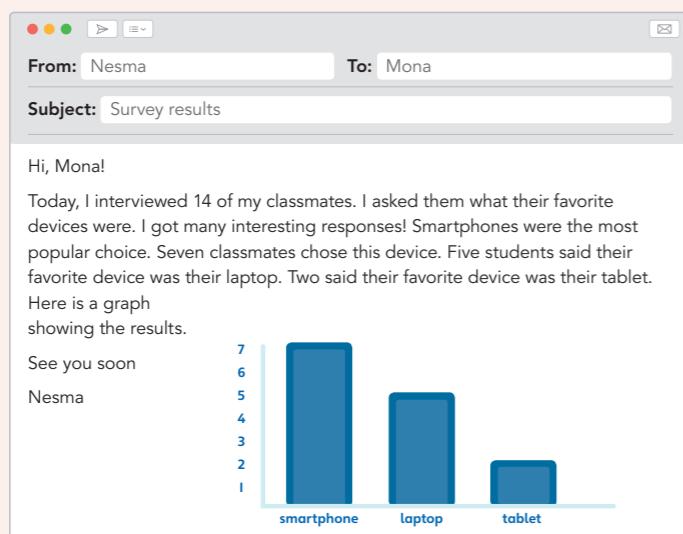
- Remind students to give a reason for their opinion.

## LEARN

**AIM:** To learn about different ways of reporting information.

**TIME:** 15–20 minutes

- Say **Now we're going to read about how researchers report the information they gather. By the end, we'll know more about different ways to communicate electronically.**
  - Draw students' attention to Learn. Ask **Who is making notes in the picture? Mr. Lin.** Read the lesson Objectives. Say **We're going to try Popcorn Reading now.**
- Follow the steps for **Routine 10: Popcorn Reading**.
- After they finish reading, ask some more questions to check understanding, e.g.: **Which tools does Mr. Lin use? Blogs, published articles, social media sites, interviews, TV programs.**



Other ways to report information are video chats and even text messaging.

#### Explore

Review the topic you graphed in the previous lesson (7). Use the information you gathered to write an email to your teacher about the topic and include your graph.



#### Review

1. Compare and contrast the different ways you can communicate electronically.
2. Which method of communication do you use most to report information? Why?
3. Can you think of other methods of communication you can use to report information?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

39

## EXPLORE

**AIM:** To discuss and use information students have gathered to write an email. To lead this discussion/activity in a way to meet the objectives while also linking into what they have learned so far.

**TIME:** 5–10 minutes

- Introduce the topic. Say [Now we're going to write an email with information you gathered in Lesson 7.](#)
- Follow the steps for **Routine I4: The 2 to 4 Discussion.**
- Encourage students to share their emails with other students. (See the Lesson Plan.)

**OPTIONAL:** Introduce more creative thinking by asking students which type of graph is best for an email. You could also draw students' attention to the different parts of an email.

## LIFE SKILLS

Praise some or all students for their ability to communicate. Explain that they will develop this skill throughout the lesson.

## REVIEW

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** to be completed at home

- Follow the steps for **Routine I6: Family test.**

**OPTIONAL:** In the next lesson, ask students to compare the answers they gave and tell the class what they still need to work on.

- At the end of the section, say [Well done! You've learned a lot this lesson!](#)

## SELF-ASSESS

**AIM:** To evaluate their learning process and determine next steps.

**TIME:** to be completed at home

- Follow the steps for **Routine I8: Promise!**
- Praise students' work.

## BE THE EXPERT

Talk students through the different parts of an email. Highlight the importance of including a subject line, a salutation and a closing phrase. Point out that emails summarising information should be brief. If possible, have students practice sending the email they wrote in Explore and attach a file or picture.

## TEACHING TIP

To test students' understanding of the different types of electronic communication explored in this lesson, prepare cards or show online images of the ways mentioned on page 38 and ask students to name the type of electronic communication.

## HOME-SCHOOL CONNECTION

**Life skill:** Learning to do: collaboration

If students have a computer at home, have them try different ways of communicating electronically with their family. Which do they prefer?

## LESSON 8 pp. 40–41

### Learn by doing

## COMPREHENSION

**AIM:** To check and consolidate the knowledge that students should have learned today.

**TIME:** 5–10 minutes

### 1 Read, think and write

1. Ask **What are some formats we can use to report findings that we saw in this theme?** Allow students to look back at the theme for possible answers.
2. Read the task out loud. If students struggle, you can show images of the different formats.
3. Say **Now do the task and write.** Students can compare answers with peers.

(Suggested answers: 1. Report findings in an informal way to the people who follow your blog; 2. Report findings in a formal or informal way to specific people; 3. Report findings in a digital or print newspaper or magazine; 4. Report findings in an informal way to followers; 5. Report findings in an informal way to a specific person; 6. Report findings by discussing them with specific people; 7. Report findings to the general public)

## RESEARCH

**AIM:** To put into practice the knowledge that students should have learned today.

**TIME:** 10–15 minutes if in class; or to be completed at home

### 2 Read, think and answer

1. Read the task out loud. Students can work in pairs or small groups.
2. Go through each step and offer support as needed. If students struggle, be prepared with an example of an online article which you can show in class.

### Learn by doing

## LESSON 8 Reporting findings

### Comprehension

#### 1 Read, think and write

There are a variety of formats you can use to report findings. Below are some examples. Make notes next to each format explaining how it can be used to report findings.

1. blogs: \_\_\_\_\_
2. email: \_\_\_\_\_
3. articles: \_\_\_\_\_
4. social media sites: \_\_\_\_\_
5. text messages: \_\_\_\_\_
6. video chats: \_\_\_\_\_
7. TV programs: \_\_\_\_\_

### Research

#### 2 Read, think and answer

Online articles allow an individual or small group to express their thoughts to their audience. Some may just include text. Others will include visual media, like pictures or graphs. Create an online article using the information you gathered in the previous lesson (7). Report your findings. To prepare:

1. Create an interesting headline for your article.
2. Who will you invite to read your article? Friends? Family? Teachers? Classmates? Explain your choices.  
\_\_\_\_\_  
\_\_\_\_\_
3. How will you get and keep your audience interested in reading your article?  
\_\_\_\_\_  
\_\_\_\_\_

40

#### 4 Write notes about how you will summarize your findings.

---

---

### 3 Create your online article

Use the space below to write your online article. Don't forget to include visuals, like pictures or graphs, to help report your information.

### Critical thinking

#### 4 Compare and contrast

In this lesson, you wrote an email and created an online article to report your findings. Compare and contrast the experience you had using these two methods. Include what you liked and didn't like about each method.

---

---

---

- 3 Create your online article
  1. Read the task out loud. If students have access to a computer, have them create the articles online.
  2. Have students complete and share their articles with peers. Encourage them to comment on each other's work.

## CRITICAL THINKING

**AIM:** To develop their ability to think purposefully and understand multiple perspectives.

**TIME:** 10–15 minutes

### 4 Compare and contrast

1. Read through the task. Deal with any new words as needed. You could board a simple table to support students:

	I liked... ☺	I didn't like... ☹
Email		
Online article		

2. Students can complete the task alone or in groups. Monitor as students work through their tasks and offer support as needed.
3. Compare answers as a whole class and discuss any different answers.

## EXTENSION ACTIVITIES

1. Ask students to do online research on different online articles and say which they prefer and why.
2. Ask students to write a report with their findings from Lesson 7 and then compare this with their experience of sending an email. Which do they prefer? What would the receiver prefer to read?

(Alternative:) 2. Ask students to interview their family about which method of communication they prefer to share or receive findings.

## REVIEW Theme I pp. 42–43

### VOCABULARY

**AIM:** To practice and revise keywords from Theme I.

**TIME:** 5–10 minutes

#### 1 Write and compare

1. Read the task aloud. Then ask students for ideas about the connection between the first two words. Accept reasonable answers and explain that students should write the answer in a full sentence.
2. Form pairs. Have students work together to write sentences for each of the pairs of words.
3. Check answers as a class and discuss any differences in the sentences that the groups have written.  
(Suggested answers: 1. Words which you type on the keyboard appear on the screen of the computer; 2. The operating system sends data to the CPU which processes the data and sends it back to the operating system; 3. We can present the results of a survey on a graph.)

### REVIEW QUESTIONS

**AIM:** To reflect on lessons learned from Theme I.

**TIME:** 12–15 minutes

#### 2 Read and answer

1. Read aloud the task. Have students work independently in writing responses to the questions.
2. When students are finished, form pairs or small groups. Encourage group members to share what they wrote and to check their answers. Monitor as students work and make a note of any difficulties that they have.  
3. Discuss answers as a class. If students had difficulty with any of the questions, be sure to explain the answers to those.  
(Suggested answers: 1. Archaeologists can use ground penetrating radar and global positioning systems to explore the earth.; 2. Electricity was first used in the Electro-Mechanical Age.; 3. In a video chat, you would likely use a speaker, a screen and a microphone.; 4. Assistive technology is technology which can help people of determination with tasks, for example a hearing aid can help people to hear. 5. Application software is a computer programme designed to carry out a specific task. An example is PowerPoint®.)

## REVIEW Theme I

### Vocabulary

#### 1 Write and compare

Write a sentence for each set of words to explain the connection between them. Then compare your sentences with a partner.

1. **keyboard** and **screen**

2. **operating system** and **CPU**

3. **survey** and **graph**

### Review Questions

#### 2 Read and answer

1. Name two tools that archaeologists can use to explore the earth.
2. During which Age was electricity first used?
3. Write three devices that you would likely use during a video chat.
4. What is assistive technology? Write one example.
5. What is application software? Write one example.
6. Identify a common ICT problem, and what is one way it can be resolved?
7. What is the best way to interpret a lot of data?
8. Write three ways that researchers report data.

42

### Critical Thinking

#### 3 Think and answer

1. Which age of technology do you find the most interesting, and why?

2. Some people say that a CPU is like the brain of a computer. Explain why that description fits.

3. You have just completed your research, and you want to share the results with your friends. How would you share this information electronically? Explain your choice.

### Essential Question

#### 4 Think and complete

Think about the information that you have learned in this theme. How does it help you to understand how to use technology effectively? Complete the sentence with your own ideas.

After studying this theme, I know that I can use technology effectively because

### Activity

#### 5 Research, create, and show

Create your own exhibition about a type of assistive technology that you find interesting.

Find photographs or draw pictures of it. Then make labels and write captions for your photographs and illustrations. Include information about:

- what type of technology it uses
- how it works
- how it helps people of determination
- where you can find / buy / see it

Invite your classmates to visit your exhibition.

43

6. A common computer problem is that the screen freezes. It can often be resolved by pressing and holding "Ctrl", "Alt" and "Del" buttons together.; 7. The best way to interpret a lot of data is to look for trends in the information.; 8. Researchers can report data in a published article, on social media, or on a TV program.)

### CRITICAL THINKING

**AIM:** To think about what they have learned and apply their knowledge to a new situation.

**TIME:** 10–12 minutes

#### 3 Think and answer

1. Read aloud the task. Have students work in pairs to discuss and write responses to the questions. Monitor as students work through the questions and support as needed.
2. Check answers as a whole class and discuss any discrepancies in their answers. (Suggested answers:

1. Students' own answers; 2. The CPU controls what and how data is processed, like the brain controls what people do and how people feel things; 3. Suggested answer: I would present the information in a graph in a PowerPoint® presentation. This is a clear way to present information and I can explain everything in detail.)

### ESSENTIAL QUESTION

**AIM:** To think about what they have learned and apply their knowledge to their own situation.

**TIME:** 5–10 minutes

#### 4 Think and complete

1. Read aloud the task. Discuss students' ideas as a class. Praise all reasonable answers.
2. Ask students to write their own answers and compare their answers in pairs.

### ACTIVITY

**AIM:** To create an exhibition using a variety of media.

**TIME:** 30–45 minutes

#### 5 Research, create and show

1. Read aloud the directions. Verify that students know how to find the materials they will need to create their exhibitions.
2. Circulate as students work, providing assistance as necessary.
3. When students have finished creating their exhibitions, set aside time for them to invite their classmates to view the exhibition. Encourage classmates to ask questions and give constructive and positive comments.

## Pacing Guide for Theme 2

Lessons	Activities	Recommended timings	Lessons	Activities	Recommended timings
Theme opener; 1.1 and 1.2	Theme opener	9-12 minutes	Lesson 5 and LBD	5.1 Objectives 5.1 Engage 5.1 Learn 5.1 Explore 5.1 Review 5.1 Self-assess 5.2 Learn by doing	2-3 minutes 2-5 minutes 10-15 minutes 5-10 minutes 5-10 minutes At home 20-30 minutes
Lesson 1: Explorer in Action	I.1 Objectives I.1 Engage I.1 Learn I.1 Video I.1 Explore I.1 Review I.1 Self-assess I.2 Learn by doing	2-3 minutes 5-7 minutes 15-20 minutes 5-10 minutes 5-10 minutes 5-10 minutes At home 28-45 minutes	Lesson 6 and LBD	6.1 Objectives 6.1 Engage 6.1 Learn 6.1 Explore 6.1 Review 6.1 Self-assess 6.2 Learn by doing	2-3 minutes 3-5 minutes 10-15 minutes 5-10 minutes 5-10 minutes 5-7 minutes 18-25 minutes
Lesson 2 and LBD	2.1 Objectives 2.1 Engage 2.1 Learn 2.1 Explore 2.1 Review 2.1 Self-assess 2.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes At home At home 28-42 minutes	Lesson 7 and LBD	7.1 Objectives 7.1 Engage 7.1 Learn 7.1 Explore 7.1 Review 7.1 Self-assess 7.2 Learn by doing	2-3 minutes 2-5 minutes 10-12 minutes 5-10 minutes 7-10 minutes At home 25-35 minutes
Lesson 3 and LBD	3.1 Objectives 3.1 Engage 3.1 Learn 3.1 Explore 3.1 Review 3.1 Self-assess 3.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes At home 25-30 minutes	Lesson 8 and LBD	8.1 Objectives 8.1 Engage 8.1 Learn 8.1 Explore 8.1 Review 8.1 Self-assess 8.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 10-12 minutes 5-7 minutes 5-7 minutes 125-140 minutes
Lesson 4 and LBD	4.1 Objectives 4.1 Engage 4.1 Learn 4.1 Explore 4.1 Review 4.1 Self-assess 4.2 Learn by doing	2-3 minutes 2-5 minutes 15-20 minutes 5-10 minutes 5-10 minutes At home 25-30 minutes	Review	R.2 Vocabulary R.2 Review Questions R.2 Critical Thinking R.2 Essential Question R.2 Activity	5-10 minutes 12-15 minutes 10-12 minutes 5-10 minutes 30-45 minutes



## THEME 2 pp. 44–45

### Digital safety and security precautions

#### ESSENTIAL QUESTION

How can you be safe and use reliable sources when online?

**AIM:** To encourage students to think critically about online resources and to introduce the theme.

#### TIME: 5–7 minutes

Read the Essential Question with the class. Invite students to describe how they use computers and the internet at home and at school. Explain that the internet is a powerful tool and that it has to be used wisely. Tell the class that this theme will help them to think about and find answers to the essential question.

#### Spotlight on Theme 2

**AIM:** To introduce the topic of the theme, which presents using computers and online resources to conduct research.

#### TIME: 4–5 minutes

Look at the photo with the class. Tell students that the woman in the picture is a scientist. Ask students to guess what kind of scientist she might be. Then read aloud the caption, confirming that the scientist is a biologist.

Explain that biologists study plants, animals, and other living things. Some biologists spend a lot of time outdoors. They observe plants and animals in their natural habitat. Other biologists work in laboratories. They do experiments and examine the results. But no matter where they work, most biologists use computers and online resources to help them understand their findings and to connect with other scientists. Ask students to think about what a biologist has to research online.

Then ask students to work in pairs to read the Spotlight text so they can learn more about the topic of the theme. Afterwards, invite volunteers to share what they learned.

## LESSON 1 pp. 46–47

### EXPLORER IN ACTION

#### OBJECTIVES

- Talk about the importance of the internet in making the world a better place.
- Describe how technology can be used to communicate with other people (classmates, friends, teachers, and family members).
- Explain why technological solutions must match people's lives.

#### LIFE SKILLS

- Learning to know: critical thinking; problem solving

#### VALUES

- Academic values: appreciation of science

#### ISSUES AND CHALLENGES

- Health and population issues: therapeutic health

#### MATERIALS NEEDED

- Poster paper or whiteboard; markers (Engage)
- Classroom computer (Extension)

## LESSON 1 EXPLORER IN ACTION

#### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Talk about the importance of the internet in making the world a better place.
- Describe how technology can be used to communicate with other people (classmates, friends, teachers and family members).
- Explain why technological solutions must match people's lives.

<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work
<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work
<input type="checkbox"/> Very well	<input type="checkbox"/> OK	<input type="checkbox"/> Need more work

#### Engage

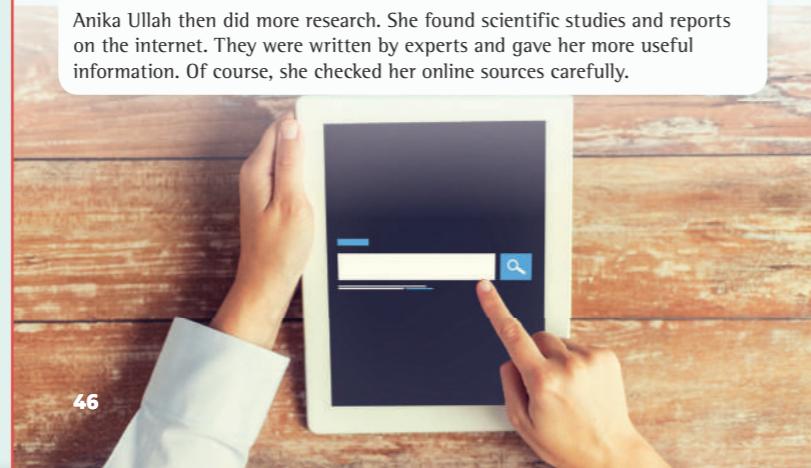
How do you use the internet to find out more about things and people you care about?

#### Learn

The internet can give us access to information on all kinds of information. We can type a question into a search engine to find answers quickly and easily. However, it is important to check the information because it may not always be correct.

Once, when biologist Anika Ullah was at a wedding, she tried a dessert made from an unusual nut that she'd never heard of. She didn't know anything about these nuts, so she looked them up in an online encyclopaedia. She found many uses for the nuts, but also discovered that eating too many of these nuts can cause cancer.

Anika Ullah then did more research. She found scientific studies and reports on the internet. They were written by experts and gave her more useful information. Of course, she checked her online sources carefully.



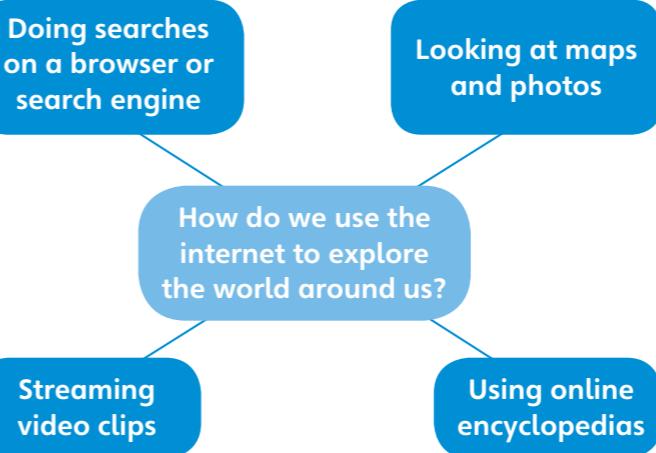
## ENGAGE

**AIM:** To help students achieve the lesson objectives by organizing the new information they have learned.

**TIME:** 5–7 minutes

- Follow the steps for **Routine 9: Mind-Mapping**.
  1. Draw a big circle in the middle of the board or on chart paper. Label it with the question: *How do we use the internet to explore the world around us?* (See the Lesson Plan.)
  2. Elicit responses from the class, adding their ideas to the Mind Map.
  3. Provide feedback as you add to the Mind Map, explaining to the class how other people, including yourself, use the internet and online sources. Say *When I'm doing a research project, I like to look at photos and videos. Text is important too, but pictures help me understand the topic in a different way.*

#### Answers:



4. After you finish the Mind Map, ask students to elaborate on their ideas. Ask *What kinds of websites and online encyclopedias do you like to use?*

**OPTIONAL:** Say *Copy the mind map in your books.*

The aim is to visually organize what students learn about the topic.

## LEARN

**AIM:** To enable students to read text in a way that maintains their interest; to help students improve their own reading ability.

**TIME:** 15–20 minutes

Introduce the topic. Say *Now we're going to read about a biologist called Anika Ullah and one of her research projects. We'll see how she used the internet to learn about a nut that grows in the forest.*

Follow the steps for **Routine II: Buddy Reading**.

- When students are finished reading the paragraph, check comprehension by asking students to summarize the text. Ask *What happened at the wedding? Ms. Ullah tried a dessert made of nuts. How did she feel after trying the dessert? She was curious and wanted to learn more about the nuts. What were the first steps in her research? First she looked at an online encyclopaedia. Then she looked up some scientific reports. How did she help the community? She talked to local people and led a campaign to help people lead healthier lives.*

#### OBJECTIVES

**AIM:** To engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

- Follow the steps for **Routine I: Time to Explore!** (Suggested answers: *Now's our chance to... explore how online research connects to real-world problems, talk about problems in our own community, think about solutions, etc.*)
- Say *By the end of the lesson, we will have thought about and discussed all of these topics.*

#### LIFE SKILLS

Explain to students that when they organize and evaluate their ideas, it's called critical thinking. Explain that they will use critical thinking to solve problems during the lesson.



#### Video

Watch the video about Anika Ullah and her work in San Ysidro. How did she find out about the lemon trees? What did her research show her? What could be made to spread the message to the community?

#### Explore

If you found out about a dangerous food, how would you solve the problem? What research should you do? What tools do you need?

#### Review

1. Why is it important for scientists to reach out to people directly when they do research? How can they use technology to do this?
2. Why do you think it is important for technological solutions to find out more about people's lives?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

47

## VIDEO

**AIM:** To learn more about how Anika Ullah makes use of technology in her scientific research.

**TIME:** 5–10 minutes

- Follow the steps for **Routine 19: Preview, View, Review.**
- Say **You are going to watch a video about Anika Ullah. What do you know about her so far?**
  1. Encourage students to answer with as much detail as they can.
  2. Read aloud the questions in Video. Have a class discussion about the questions. Students raise their answers to make predictions about what they will see and how the questions will be answered.
  3. Have students complete this step in pairs. Play the video once or twice. Students pair up and discuss the answers to the questions. Ask **Were any of your predictions correct? Which ones?**
  4. Ask follow-up questions about the video to generate more discussion, e.g.: **What did you find surprising about the video? What did you learn that you didn't know before?**

#### Answers:

**A local man told her that fruit trees developed black spots on them. Her research showed her that the lemon trees could detect air pollution.**  
**Suggested answer: Leaflets or signs could be made to spread the message: they should turn off their engines.**

## EXPLORE

**AIM:** To collaborate on research-based action plans that address the problem of a dangerous food.

**TIME:** 5–10 minutes

1. Introduce the topic. Say **Now we're going to look at another problem and how it can be solved using online resources.**
2. Read the questions aloud. Remind students of how Ms. Ullah approached the problem described in the text. Say **First, Ms. Ullah identified the problem. Then she gathered information by going online. But she didn't stop there. She also talked to local people. She knew that local people would have to be involved if her campaign was going to work.**
3. Follow the steps for **Routine 14: The 2 to 4 Discussion.**

**OPTIONAL:** Introduce more critical thinking by asking students to think of criteria they could use in evaluating how well their solution had addressed the problem. Encourage creative responses.

## LIFE SKILLS

Praise students for thinking critically. Explain that this is a useful skill to solve problems.

## REVIEW

**AIM:** To informally assess themselves to see if they understand the main ideas of the lesson. Teachers can use this as a barometer for students' needs to inform future teaching.

**TIME:** 5–10 minutes

- Follow the steps for **Routine 15: Test a Partner.**
- At the end of the section, say **Well done! You've learned a lot this lesson!**

## SELF-ASSESS

**AIM:** To evaluate their learning process and determine next steps.

**TIME:** to be completed at home

- Follow the steps for **Routine 18: Promise!**
- Praise students for their efforts.

## BE THE EXPERT

Taiwan is an island country in East Asia. It is surrounded by the People's Republic of China, Japan, and the Philippines. The main island of Taiwan is very mountainous, and consists mainly of subtropical evergreen forests. These forests are home to nut farms, which are grown and consumed for their stimulating effects. Many people say that chewing the nuts is like drinking a strong cup of coffee. But the use of the nuts also has a dark side. As Ms. Ullah discovered, habitual chewing of the nut can lead to cancer. The habit is also very addictive, which is why the government of Taiwan is taking steps to limit its cultivation and use.

## TEACHING TIP

Try doing an online search with your students. Use a topic of interest to them and work together in coming up with a useful search term. Enter the term into a search engine and talk about the results with students. Students will learn more about search terms and how to evaluate results later in the theme. For now, you may simply want to point out that the most popular result is always listed first. Stress caution and good judgment in deciding which links to pursue. Students should always pause and look at the source before clicking on a link.

## HOME-SCHOOL CONNECTION

**Life skill:** Learning to know: critical thinking

Have students ask family members if they know of any biologists or other scientists. Invite them to share what they learned with the class.

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Playing the video about the scientist Anika Ullah, by sectioning it and playing one section at a time, commenting on it and deducing its main idea, then moving on to the rest of the sections and do the same. - Facing hearing impaired students while commenting on the videos.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.	Describing the content of the videos to the blind.			

## LESSON 1 pp. 48–49

### EXPLORER IN ACTION

#### LIFE SKILLS

**AIM:** To think critically about problems associated with online research.

**TIME:** 3–5 minutes

##### 1 Read and answer

1. Remind students that Ms. Ullah used online research to help her figure out a solution to a health-related problem in her community.

2. Read aloud the question. Take notes on the board as students share their responses. (Suggested answers: **Sometimes you can't find any information that's directly related to your topic. Sometimes the information you find is hard to understand.**)

3. Use the notes to lead a short discussion about problems associated with online research and how those problems can be resolved or dealt with. Ask **How can you solve or deal with some of the problems we discussed?** (Suggested answers: **If you can't find a useful site, try changing the search term. If the information is difficult to understand, ask an adult for help.**)

#### Graphic organizer

**AIM:** To consolidate their knowledge and represent it in a graphic organizer.

**TIME:** 5–10 minutes

##### 2 Read and complete

1. Read the task aloud and remind students to think about times that they have looked for information online.
2. Copy the blank flow chart onto the board. Then tell students that you would like them to help you fill out the chart.
3. Point to the first box. Ask **What is the first step when you are looking for information online? Decide what information you want to find out.** Write the answer in the first box. Continue in this way, eliciting answers from the class and then writing the answers in the appropriate box of the flow chart.

## LESSON 1 EXPLORER IN ACTION

#### Life skills

##### 1 Read and answer

What are some possible problems with finding out information online?

#### Graphic organizer

##### 2 Read and complete

Complete this flow chart to show the sequence of activities when you research something online. Write the sentences in the box in the correct places in the flow chart.

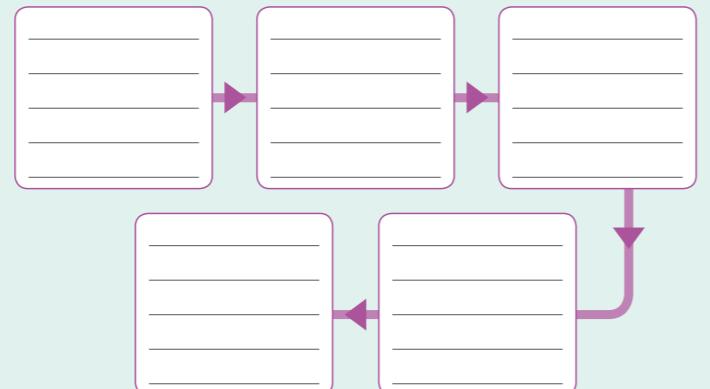
Cross check facts by trying to find them in more than one place.

Decide what information you want to find out.

Look carefully at the information that you have found.

Tell the reader where the information came from.

Think about the search terms or key words you will use.



48

#### CRITICAL THINKING

**AIM:** To think about what they have learned and apply their knowledge to a new situation.

**TIME:** 10–15 minutes

##### 3 Think and answer

1. Read through the task and the different scenarios. Deal with any new words as needed.
2. Students can work through each scenario with a partner, or you could assign scenarios to different pairs or groups of students. Monitor as students work through their scenarios and support as needed.

3. Check answers as a whole class and discuss any discrepancies in their answers. (Suggested answers:

**Ia. Personal knowledge; Ib. Put the sentence into a search engine and see what kinds of websites pop up; Ic. Put the sentence into a search engine and see what kinds of websites pop up; Id. Use terms such as “Egypt + clean water” in a search engine; 2. Sometimes you already know something about the topic and it’s unnecessary to do formal research; some topics are more technical and you need to look up information.)**

#### Critical thinking

##### 3 Think and answer

You can find out information by talking to people directly, or by finding information online. When you do research, you need to make sure that the information is accurate. Work in pairs to discuss the following questions.

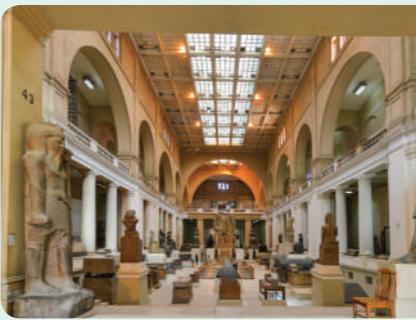
1. How could you find out information about each of the following topics?
  - a. Popular free time activities (sports, entertainment, etc.) for young people in different parts of Egypt.
  - b. What games children play in other countries.
  - c. How national days are celebrated across the world.
  - d. How to improve access to clean water in Egypt.
2. Why might it be easier to find information about some areas of research than others?

#### ICT and me

##### 4 Think and answer

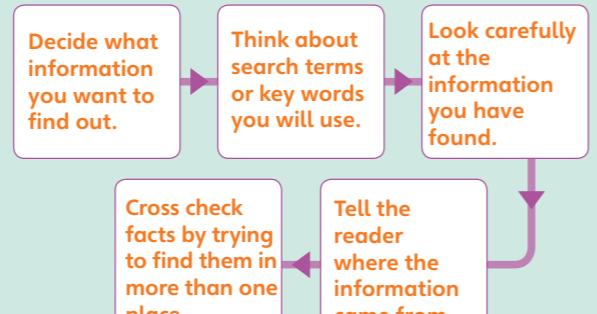
Read the situation below. Write a short paragraph to describe how you can do some research for this project.

A museum, gallery or monument in your area wants more young people to visit it. Find out what kind of things might attract young people to this place and think about how you can tell them about it.



49

#### Answers:



4. Say Now copy the answers in the flow chart in your books.

#### EXTENSION ACTIVITIES

1. Ask students to look for information on a special kind of plant that grows in the community where they live. Allow them to use classroom computers so that they can do their research online.
2. Have students draw and label a picture of their favorite tree, flower, or other plant. Invite them to share their drawings with the class.

## LESSON 2 pp. 50–51

# Online dangers and how to be safe

### OBJECTIVES

- Describe online risks and dangers.
- Explain the importance of keeping personal information private.
- Discuss ways to be safe while online.

### LIFE SKILLS

- Learning to be: communication
- Learning to know: critical thinking

### VALUES

- Personal values: independence

### ISSUES AND CHALLENGES

- Citizenship issues: awareness of duties and rights

### MATERIALS NEEDED

- Poster paper and pens (Extension)

## LESSON 2 Online dangers and how to be safe

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Describe online risks and dangers.
- Explain the importance of keeping personal information private.
- Discuss ways to be safe while online.

Very well	OK	Need more work
Very well	OK	Need more work
Very well	OK	Need more work

### Engage

What do you already do to stay safe online?

### Learn

#### Communicating online

There are many ways to communicate online. You can use computers, phones, or tablets.

People may use instant messaging, email, direct messages, and message forums to communicate. Be careful – some people communicate online to be unkind or to steal personal information.

Behave online as you would in person. Always be kind and honest when communicating with others. Be sure you know who you are chatting with. If someone is unkind or makes you feel unsafe, you can **block** the person.

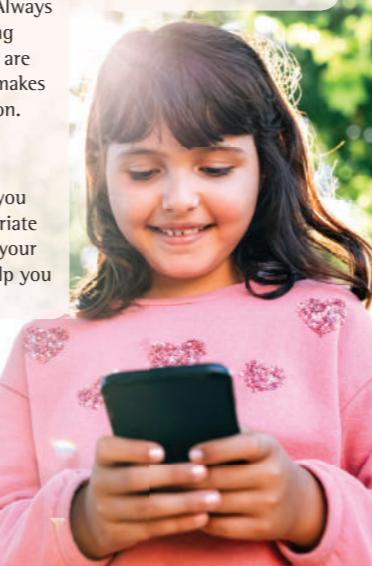
#### Unsafe websites

Be careful when clicking on links. Don't click on links that you are unsure of. If you accidentally view an unsafe or inappropriate site, don't panic. Leave the site and tell your teacher or a family member who can help you feel safe.

When you **block** someone, that person cannot see your posts or contact you.



Some examples of **personal information** include your address, your name and the name of your school. Can you think of other examples?



50

## ENGAGE

**AIM:** To encourage students to reflect on and share information about safety guidelines that they already follow in their daily lives.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**.

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **Why do you think that's a good idea? What other steps do you take to be safe when you're online?**

## LEARN

**AIM:** To motivate students to read a long text; to enable students to achieve the lesson objectives.

**TIME:** 15–20 minutes

- This activity looks at the life skill of communication. Follow the steps for **Routine 7: K-W-L Chart**.
- Tell students to keep their K-W-L chart. Encourage them to continue taking notes on their charts throughout the theme. At the end of the theme, students can refer back to their charts and see what they learned.

## OBJECTIVES

**AIM:** To engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

1. Say **This lesson we're going to learn how to be safe when we're online.** Follow the steps for **Routine I: Time to Explore!**

(Suggested responses: **Now's our chance to... learn about safety when sending messages, think about guidelines for sharing information online, tell the difference between safe websites and websites that might not be safe, etc.**)

2. Say **By the end of the lesson, we will know a lot about online safety.**

#### Sharing data online

Don't share personal data online without asking your teacher or a family member if it is OK. If you share your personal data online, you may receive spam messages.

Check your privacy settings on social media sites. Make sure that only your friends and family can view your information. Always think before you post something, especially a photo or video. Ask yourself, *Am I sure this photo is appropriate? Could this embarrass or hurt me or others?*

Always think before you post about yourself or other people.

#### Downloading files

Think carefully before you download files. Some files have viruses. Viruses can damage your computer or be used to track your information. Check the website before you download a file. Is it a trusted site? If you are not sure, you shouldn't download files from it. Learning is power! Use what you learned to stay safe and happy while online.

#### Explore

Protect yourself while online. Work in a group to create a list of guidelines to help keep you safe. Which guideline is most important to you? Discuss with your classmates.

#### Review

1. Explain common dangers that you may face while online.
2. Go back to the Engage question. Based on what you read in Learn, is your answer still the same? Why?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

**Spam** mail includes unwanted messages to advertise products or gather more information from you. The messages may also include viruses. If an email includes an unfamiliar address, unknown links, or messages in ALL CAPITAL LETTERS, it might be **spam**.



When you are using the internet, you might want to **download** a file. This saves it to your computer so that you can look at it later, without being connected to the internet!

51

## EXPLORE

**AIM:** To enable students to work quickly, creatively, and collaboratively to generate ideas; to lead an activity based on their ideas to meet the objectives.

**TIME:** 5–10 minutes

- This activity looks at the important value of independence when working online. Follow the steps for **Routine I3: Brainstorm**.

## REVIEW

**AIM:** To check and consolidate the knowledge students should have learned today.

**TIME:** to be completed at home

- Follow the steps for **Routine I6: Family Test**.
  1. Draw students' attention to Review.
  2. Say **You're going to ask a family member to test you on your knowledge**.
  3. Say **First, you are going to copy some questions on a piece of paper. Later on today, someone in your family will ask you the questions. Tell them everything you know!**
  4. Have students copy these questions to take home so that family members can test them: **What are some common dangers we face when going online? What can we do to stay safe? Which guideline is most important to you?**
  5. When students return to class, follow-up by asking them: **Based on what you've learned so far, has your answer to the Engage question changed? How?**

## SELF-ASSESS

**AIM:** To evaluate their learning process and determine next steps.

**TIME:** to be completed at home

- Follow the steps for **Routine I8: Promise!**
- Praise students for their work.

## BE THE EXPERT

UNICEF estimates that one in three children around the world is an internet user. According to a recent study conducted in Egypt, at least 14 percent of children in rural areas and 34 percent of children in urban areas use the internet regularly. It can safely be assumed that those figures are continuing to rise.

### TEACHING TIP

Online safety can be referred to in a number of ways. Other terms that have the same meaning include *e-safety*, *cyber safety*, and *internet safety*. Share these terms with the class, explaining that they are basically interchangeable.

### HOME-SCHOOL CONNECTION

**Life skill:** Learning to know: critical thinking

Have students ask family members to share their own tips on how to be safe while online. Invite students to share what they learned with the class.

### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
Determining ways of preserving safety measures while using the internet and writing them on the board in concise, organized and short sentences, or putting them into a mind map.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.				

## LESSON 2 pp. 52–53

### Learn by doing

#### COMPREHENSION

**AIM:** To practice using terms related to online safety.

**TIME:** 5–7 minutes

##### 1 Read and complete

- Direct students' attention to the first item. Ask them to look at the box and choose the word or phrase that best completes the sentence. If necessary, guide them to the correct response: **spam**. Have students write the word in the blank.
- Have students complete the remaining items independently or in pairs.
- When they are finished, create an answer key on the board so that students can check their work.  
(Answers: 1. **spam**; 2. **download**; 3. **block**; 4. **personal information**; 5. **instant messaging**)

**OPTIONAL:** For additional practice, have pairs of students work together in creating their own sentences for each of the terms in the box.

#### LIFE SKILLS

**AIM:** To use critical thinking skills when deciding whether to accept a social media user as a friend.

**TIME:** 3–5 minutes

##### 2 Think and answer

- Ask students about the social media accounts that they have. Invite them to share about the number of friends they have on the account. Ask **How do you decide whether to accept someone as a friend on your account?**
- Read the task aloud. Then tell students to look at the picture of Rami. Ask students if they would accept him as an online friend. Use questions that help students to think critically about the decision: **Do you know Rami? Does anybody in your family know Rami? Do you even know if this is a real photo of him? Then how do you know you can trust him?**
- Form pairs of students. Have them look at the remaining profiles and discuss whether it would be a good idea to accept them as friends.
- When students are finished, go through the list of profiles and call

### Learn by doing

## LESSON 2 Online dangers and how to be safe

#### Comprehension

##### 1 Read and complete

Complete the sentences. Use the words from the box.

block download instant messaging personal information spam

- An email from an unknown address that includes advertisements is likely to be \_\_\_\_\_.
- When you \_\_\_\_\_ a file, you save it to your device.
- If you \_\_\_\_\_ someone, they will no longer be able to contact you or view your account.
- Think carefully before you share your address or other \_\_\_\_\_ online.
- You can use \_\_\_\_\_ to communicate with friends.

#### Life skills

##### 2 Think and answer

You are setting up a new social media account. Who would you accept as a friend? Check. Then discuss your choices with a partner.



Name: Rami  
From: unknown  
Age: 23



Name: Younis  
From: school  
Age: 9



Name: Malak  
From: my sister  
Age: 12



Name: unknown  
From: unknown  
Age: unknown



Name: Amir  
From: Younis' dad  
Age: 32

52

on pairs to summarize their thought process with the class. Provide feedback as the discussion progresses, telling students why you think each of the characters shown would be a good person to befriend or not. (Suggested answers: **Younis is a safe person to accept because I know him from school; Malak is my sister and so of course it's safe to connect with her online; the fourth person doesn't provide any information about himself and so it's definitely not a good idea to accept him as a friend; Amir might be a good person to accept, but first I should talk to his father to make sure Amir is who he says he is.**)

- Read the directions at the top of page 53. Have students work independently in checking off each of the items.
- When they are finished, lead a discussion about the appropriateness of including the various types of information in an online profile. Student responses will vary. (Suggested answers: **It's never safe to post your phone number online. It's like giving your phone number to strangers; It's OK to give your name, but for the last name you can just give an initial; Never put your address online.**)

You're now going to create your 'online profile' for your social media account. Which information would you feel secure sharing with people on social media? Check the information you would feel comfortable sharing.

• telephone number	<input type="checkbox"/>	• birthday	<input type="checkbox"/>
• name	<input type="checkbox"/>	• interests	<input type="checkbox"/>
• address	<input type="checkbox"/>	• favorite place	<input type="checkbox"/>
• school	<input type="checkbox"/>		

Can you think of other personal information you would share with people on social media? Write it below.

#### ICT and me

##### 3 Think and choose

Read the scenarios and check the boxes. There may be more than one correct answer.

- You get a message from a stranger on your social media account. The message tells you to download a file to watch a funny video.

What should you do?

- Download the video to watch later.
- Ask a parent for help and don't open the file.
- Delete and ignore the message.
- Write a reply and say you can't wait to watch it.

- A friend sends you a strange picture that scares you.

What should you do?

- Send the picture to all your friends.
- Tell a parent.
- Copy the picture to your computer.
- Send a message back with an even scarier picture.

Can you think of another online situation where you have different options about how to respond? What would you do?

53

**It can be misused in all kinds of ways. Besides, online friends don't need to know where you live; You shouldn't give the name of your school because that's like giving your address; It's nice to get good wishes from people on your birthday, so some people give the month and day of their birthday. There's no need to give the year though; It's good to share about your hobbies and interests. That way you can connect with people who have similar interests; Don't tell about your favorite place because strangers might try to meet you there.)**

#### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
Determining key words in the lesson (like block, download files, spam messages, etc.) and writing them on the board or underlining them or drawing a box around them in the Student's Book.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.				

#### ICT AND ME

**AIM:** To think about what they have learned and apply their knowledge to a new situation.

**TIME:** 20–30 minutes

##### 3 Think and choose

- This activity helps to make students aware of their duties and rights when using the internet safely. Read through the task and the different scenarios. Deal with any new words as needed.
- Students can work through each scenario with a partner, or you could assign scenarios to different pairs or groups of students. Monitor as students work through their scenarios and support as needed.
- Check answers as a whole class and discuss any discrepancies in a group discussion. (Answers: **1b, 2b**) You can summarize by telling the class that it's always a good idea to let their parents or other trusted adults know about unusual messages from strangers.
- Extend the activity by forming small groups and having them discuss the questions at the bottom of the page. When groups have had adequate time to discuss the questions, reconvene and invite groups to summarize their discussions for the class. Provide feedback as appropriate, helping students understand the difference between online activity that is safe and activity that could be risky.

#### EXTENSION ACTIVITIES

- Recently, there have been a number of movies and novels for young readers involving children or teens who get into trouble because of their online behavior. Ask students if they know about any such stories and invite them to share about the plot.
- Have students help you create a poster with a list of tips on how to be safe when online. Label one column "Do" and the other column "Don't." Hang the poster in class so that students can have a daily reminder of what to do and what not to do whenever they are online.

## LESSON 3 pp. 54–55

# Using ICT tools in a healthy and ethical way

## OBJECTIVES

- Discuss communicating positive messages online.
- Explain what it means to use ICT tools ethically.
- Explain positive and negative effects of ICT tools.

## LIFE SKILLS

- Learning to live together: respect for diversity
- Learning to be: accountability

## VALUES

- Co-existence values: respect, tolerance and acceptance

## ISSUES AND CHALLENGES

- Citizenship issues: legal awareness
- Non-discrimination issues: discrimination against people with special needs

## MATERIALS NEEDED

- Writing paper, pens or pencils (Explore, ICT and me)

## LESSON 3 Using ICT tools in a healthy and ethical way

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Discuss communicating positive messages online.  Very well  OK  Need more work
- Explain what it means to use ICT tools ethically.  Very well  OK  Need more work
- Explain positive and negative effects of ICT tools.  Very well  OK  Need more work

### Engage

Media sources can use the internet to communicate important messages. What are some important messages you have seen online or on TV?

### Learn

#### Posting online

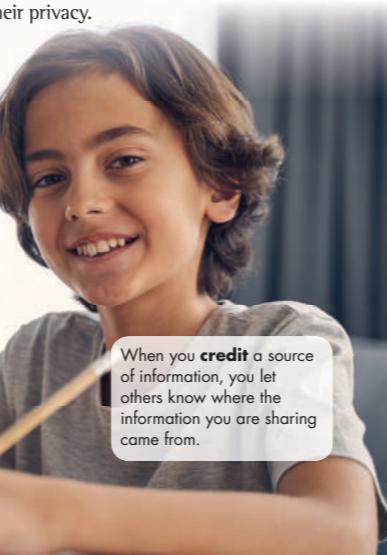
When you tag someone, you identify that person in a post, photo, or video. Anyone who has access to your account can see it. The tag provides a link to the person's profile. It's important to be sure the person you're tagging is OK with this.

When you post on social media and tag your friends, make sure to ask them permission first. It shows that you respect their privacy.

Before you post something, ask yourself, *Is this post kind? Might it be hurtful to others?* If you are unsure, don't post it.

#### Crediting others

Whether you are looking for information to post online, or to include in a PowerPoint® presentation, it's important to credit sources that provide you with information that you share with others.



When you credit a source of information, you let others know where the information you are sharing came from.

54

## OBJECTIVES

**AIM:** To engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

1. Read the objectives aloud to the class. Explain that the word ethics has to do with the difference between right and wrong: *When you are kind to others, do what's fair, and tell the truth, you are acting ethically.*

2. Say *This lesson we're going to learn how to use online resources in ways that are positive and healthy.*

- Follow the steps for **Routine I: Time to Explore!**

(Suggested answers: **Now's our chance to... learn about the importance of giving other people credit, discuss reasons for following the law, make distinctions between the positive and negative effects of the internet, etc.**)

- Say *By the end of the lesson, we will know a lot about online safety.*

## ENGAGE

**AIM:** To enable students to participate confidently and collaboratively in a class discussion that leads to the objectives of the lesson.

**TIME:** 2–5 minutes

1. Draw students' attention to Engage.
2. Say *I'm going to ask you a question. Don't say anything! Just think about it quietly!*
3. Read aloud the text. (See the Lesson Plan.) Tell about an important message you have received through the media, for example: *I have learned through TV and the radio that washing my hands is a good way to keep from getting sick.* Let students think for a moment about the important messages they have seen on TV, the internet, or radio. They may make simple notes if they wish.
4. Follow the steps for **Routine 4: Think-Pair-Share.**

**OPTIONAL:** To encourage more discussion, ask follow-up questions: *Why is that an important message? Did it change your behavior in any way?*

## LEARN

**AIM:** To enable students to read text in a way that maintains their interest.

**TIME:** 15–20 minutes

- This activity highlights the important issue of legal awareness when using the internet. Follow the steps for **Routine 10: Popcorn Reading.**

**NOTE:** Remind students to read the definitions for **tag** and **credit**.

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
Summarizing the ethics of using ICT tools by identifying main sentences and ideas.				<ul style="list-style-type: none"><li>- Supporting students by asking their classmates to help them write.</li><li>- Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible.</li><li>- Including them in groups and giving them tasks according to their disabilities.</li></ul>	

#### Respecting the law

Whether you are posting online or researching topics, be sure to respect the law. Don't go on banned sites. Banned sites may publish inaccurate, immoral, and harmful material. Ask your teacher or a family member before you go on a new site.

#### The positive and negative effects of ICT tools

ICT tools have become a wonderful part of everyday life. You can read the news with just a click of the mouse. You can upload and download videos and photos and view them whenever you want. You can communicate with friends and family anywhere in the world!

However, there are negative consequences of ICT tools. You may come across something online that upsets you. You can get eye strain or headaches from using your devices too long. Some people may rely on searching on Google™ to answer all their questions – even though it doesn't always give the right answer!

Remember to use ICT tools wisely and ethically. Know when to put your device down. Stay active and social – and be responsible.



#### Explore

What is an important message you would like to share online? Why do you feel it's important? Write a paragraph communicating your message. Then share it with the class.

#### Review

1. Explain how to use ICT tools ethically.
2. Discuss how ICT tools affect our everyday lives.

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

55

## EXPLORE

**AIM:** To write a paragraph that expresses an important idea worth sharing online.

**TIME:** 5–10 minutes

1. Introduce the Explore topic. Read the instructions aloud. (See the Lesson Plan.)
2. Say **Now is your chance to write about an idea that you think is important.**
3. Distribute pens or pencils. Give students about five minutes to write a short paragraph that expresses the idea they want to convey.
4. When students are finished writing, form pairs of students. Have partners read their paragraphs to each other.
5. Afterwards, invite a few volunteers to read their paragraphs aloud for the entire class.

**OPTIONAL:** Pin students' work to a bulletin board so that they can read each other's work.

## REVIEW

**AIM:** To check and consolidate the knowledge that students have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine 15: Test a Partner.**

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; to encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine 17: 3–2–1.**

## BE THE EXPERT

The Egyptian people are prolific users of social media and it is estimated that more than 65% of people have a Facebook account. Between 2020 and 2021, there was a 17% increase in the number of Egyptian social media users. Given how popular social media is, and how easy it is for people to share information on these platforms, it is important for students to learn how to use social media with consideration for others.

### TEACHING TIP

Students are often curious about the social lives of their teachers, and social media is one way you can help your students get to know you. If it is appropriate, consider sharing your social media profile with the class. You don't need to invite students to become friends—you can simply log into your account and project your profile on a smartboard. Show students some of your posts and photos. Point out your own security measures and the settings you have chosen to limit access to your profile.

### HOME-SCHOOL CONNECTION

**Life skill:** Learning to know: critical thinking

Have students talk with family members about the measures they take to protect their online accounts. Invite students to share what they learned with the class.

## LESSON 3 pp. 56–57

### Learn by doing

#### VALUES

**AIM:** To think about and discuss issues related to the ethical use of social media accounts.

**TIME:** 10–12 minutes

**LIFE SKILLS:** Accountability

##### 1 Think and answer

- This activity helps students to think about the life skill of taking accountability for their actions, and the value of showing respect, tolerance and acceptance of other people's feelings. Form pairs of students. Have them read, discuss, and provide an answer to the first item. When they are finished, ask partners to share their ideas with the class. (Suggested answers: **Nadia's friend might be upset because she didn't want the photo online where it could be viewed by strangers. Out of respect for her friend, Nadia should remove the photo from her account.**)

- Have partners work together in creating a written response to the next item. Then, invite them to share their responses with the class. (Suggested answers: **Maged should give credit to the source for the statistics on air pollution. He should also credit the environmental scientist, to make a distinction between his own opinions and the scientist's views.**)

**OPTIONAL:** To extend the activity, lead a discussion about online ethics. Invite students to share questions that have come up when they weren't sure about the right thing to do. Invite classmates to share their opinions and provide feedback as necessary.

### Learn by doing

## LESSON 3 Using ICT tools in a healthy and ethical way

#### Values

##### 1 Think and answer

Read the situations. Answer the questions.

- Nadia went to her friend's birthday party over the weekend. She took a lot of photos, including funny photos of her friends. Later that day, Nadia posted the photos on social media, and she tagged her friends. One of her friends was upset that she was tagged in a photo. What are some reasons Nadia's friend might be upset?

What should Nadia do next?

- Maged created a PowerPoint® presentation about air pollution in big cities. He worked quite hard, and did a lot of research. In his report, he included the following:

- statistics about pollution in big cities
- his opinions about the effects of air pollution
- what he learned about the effects of air pollution
- an environmental scientist's views on how to reduce air pollution
- his experience visiting a local factory



Check the information above that needs to be credited. Then, write why the information needs to be credited.

---



---



---



---



---



56

#### Graphic organizer

##### 2 Think and write

What are some of the pros and cons of ICT tools in everyday life? Consider:

- access to information
- health and exercise
- people of determination
- privacy

Pros of using ICT tools	Cons of using ICT tools

#### ICT and me

##### 3 Write a summary

Make a promise to yourself to use ICT tools in a healthy and ethical way. Write 1–2 paragraphs to explain how you will fulfill this promise. Consider:

- posting online
- respecting the law
- health

---



---



---



---



---

57

## GRAPHIC ORGANIZER

**AIM:** To evaluate the pros and cons of internet communication technology.

**TIME:** 5–6 minutes

##### 2 Think and write

- Summarize the theme so far. Say **We have learned that communication over the internet, or ICT, is a powerful tool. It provides instant access to information, and it helps us connect with the world. But there are risks and dangers, too. We'll talk about the pros and cons of ICT tools in this next activity.**
- Read the task aloud. Then form small groups. Ask students to take notes during their discussion, writing down the pros and cons of ICT tools in the appropriate columns of the chart.

- Reconvene the class when groups have finished. Duplicate the pro-con chart on the board and tell the class you want to create a chart that captures the best ideas from each group.
- Call on the first group. Ask group members to share one pro and con from their chart that they think is especially important. Record their ideas in the chart on the board.
- Move on to the next group, asking them to share an idea from their chart that doesn't repeat the ideas of the first group. Continue in this way until all groups have had an opportunity to share.
- Review the completed chart and discuss the results. Make sure that at least some of the ideas from the chart below have been covered.

#### Answers:

Pros of using ICT tools	Cons of using ICT tools
It's fun to post photos online.	Sometimes you can accidentally hurt a friend's feelings.
The internet has information on any topic you can think of.	Not all of the information is true or correct.
Phones and tablets are convenient because you can take them anywhere.	You can get eyestrain and headaches from looking at the screens for too long.
There are all kinds of sites with fun videos and photos.	Some sites are banned because they are harmful and immoral.

## ICT AND ME

**AIM:** To give students an opportunity to focus on their own use of ICT and to make a conscious choice to use it ethically.

**TIME:** 10–12 minutes

##### 3 Write a summary

- Read through the task and verify that students understand what to do.
- Distribute writing paper and pens or pencils. Give students enough time to write two short paragraphs in response to the prompts. Circulate as students work and provide assistance as necessary.
- Invite several volunteers to share their work with the class. You may also want to display their essays on a "promise tree" on the wall.

**NOTE:** Tell students that sharing their promises is optional, as some students may want to protect their privacy.

## EXTENSION ACTIVITIES

- Encourage students to periodically renew their promises. You can do this in a formal type of ceremony in which students read their promises aloud while holding one hand over their heart. Or they can do it less formally by putting decorative stickers on their promises at the end of the theme, as a way of honoring themselves for having kept their promises.
- Have students take their promises home so that they can read them aloud to family members.

## LESSON 4 pp. 58–59

# How to search online

## OBJECTIVES

- Explain how to use browsers to search safely and correctly.
- Discuss the process of choosing which key terms to use in an online search.

## LIFE SKILLS

- Learning to be: communication; self-management
- Learning to know: critical thinking

## VALUES

- Personal values: independence

## ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

## MATERIALS NEEDED

- Classroom computer (Explore)
- Writing paper, pens and pencils (Explore; ICT and me)

## LESSON 4 How to search online

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Explain how to use browsers to search safely and correctly.
- Discuss the process of choosing which key words to use in an online search.

Very well  OK  Need more work

### Engage

Can you always find the information you need when you search? What problems have you had when searching?

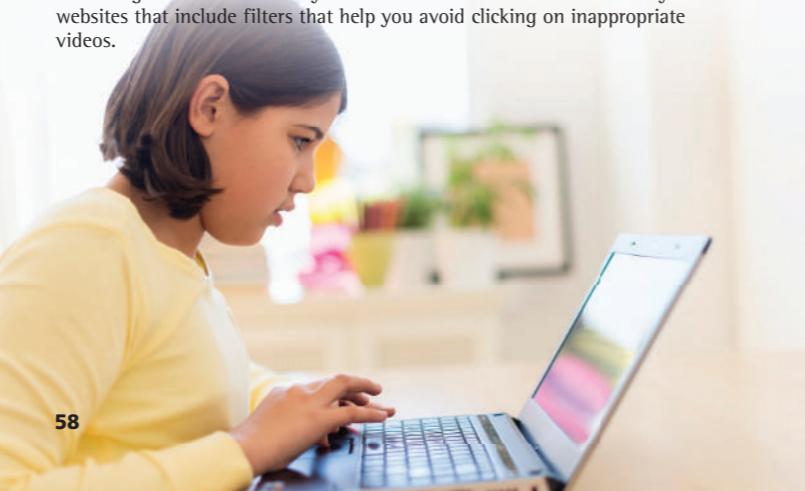
### Learn

#### Searching safely

Be sure to take advantage of the safety features of browsers you choose to do searches on. Choose browsers that warn users when they're about to enter an unsafe site or download a harmful app. If you get a warning message, be sure to show your teacher or a family member. Do not proceed to the site or with the download.

Some popular browsers have search engines set up just for children, and they will only show results that are age-appropriate. Browsers like this may also include a parental control app and helpful safety tips for children.

It's fun to watch videos online. A particular website might not be dangerous, but it might contain material you shouldn't view. Choose child-friendly websites that include filters that help you avoid clicking on inappropriate videos.



## OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths.

**TIME:** 2–3 minutes

- Follow the steps for **Routine 2: What Do I Need to Do?**

(Suggested answers: **When I try doing an online search, I'm always confused by the results. I want to learn how to use better search terms.** (See other possible answers in the Lesson Plan.)

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Using the demonstration strategy to apply the search steps in a safe way. - Writing the vocabulary (browsers, search engines) on the board and highlighting them in the Student's Book, and explaining them in a practical and simplified way.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.				

## ENGAGE

**AIM:** To enable students to participate confidently and collaboratively in a class discussion that leads to the objectives of the lesson.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**.

**OPTIONAL:** To encourage more discussion, ask follow-up questions: **Did you figure out a better way of doing your search? What was it?**

## LEARN

**AIM:** To enable students to read text in a way that maintains their interest.

**TIME:** 15–20 minutes

- The text encourages students to develop their life skill of self-management when using the internet and to develop their sense of independence. Say **I'm going to read the article aloud. Listen while I'm reading and try to follow along. I'll ask you questions at the end of each paragraph to make sure we all understand the passage.**
- Ask the following questions after reading the first paragraph: **What's one of the safety features of a browser?** (Answer: **Warnings that pop up when you're about to enter an unsafe site or download an app that's unsafe.**) Continue in this way with the remaining paragraphs.
- Paragraph 2: **What kinds of safety features does this paragraph describe?** (Answers: **Browsers that only show results that are OK for children; Browsers that have parental controls.**)
- Paragraph 3: **What's a filter?** (Answer: **It's a safety feature that prevents you from clicking on websites that aren't for young people.**)
- Paragraph 4 and accompanying example: **What's a good tip for creating a good search term?** (Answers: **Use phrases instead of single words.**) **What's wrong with a search term like "jaguar"?** (Answers: **You will get links to completely different things: links to a car-maker called Jaguar and links to different sites about the animal that has the same name.**)
- Paragraph 5: **How do you search for images?** (Answer: **By adding the image to the camera button.**)
- Paragraph 6: **Suppose you want to look up information on a movie called "The Rules of Life." What's a good search term for that?** (Answer: **+ the rules of life.**)
- Paragraph 7: **Suppose you want to look up information on the Egyptian city of Cairo, and you don't want to spend time sorting through hits on the city of Cairo in Illinois in the USA. What's a good search term for that?** (Answer: **Cairo – Illinois**)
- Paragraph 8: **What results will you get if you use the search term "I love Luxor"?** (Answer: **You will get links to sites that contain the phrase "I love Luxor."**)

## Searching smartly

Type longer phrases, not just a couple of words. This will help you get better results. If your keywords are too general, you will get too many results. Many of the results will not be relevant to your search.

### Example:

There is an animal called a jaguar. There is also a car brand called Jaguar. If you type in 'jaguar' you may get advertisements for a car! To avoid this, type 'jaguar animal'. If you were interested in where jaguars live you could type 'jaguar - animal - habitat'.

If you are searching for information on an image, use the image instead of words in your search. Use the camera button, and add your image. Your teacher can help you.



Many search engines ignore some words (like *the*, *and*, *how*, *where*, *or*). Sometimes, you need these words to be included in your search. To include them, add a + sign before the word.

Sometimes, you may want to ignore results with some keywords. This can help you avoid getting unwanted or unnecessary results. Just type a - before words you would like the search engine to avoid.

Finally, if you are searching for a particular phrase, put the phrase inside quotation marks. This will help narrow your search to the exact wording.

### Explore

Think about what search words you will use, and what you expect to find. What will you do if you find confusing results? Who will you ask for help if you need it? Write a plan and share it with your classmates.

### Review

1. Explain safety features that browsers you use should include.
2. Discuss effective ways to do a search online.

### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can ...** box.

59

## EXPLORE

**AIM:** To practice creating and using effective search terms.

**TIME:** 5–10 minutes

1. Introduce the Explore topic, which further develops the life skills of communication and self-management through them working independently. Read the task aloud. (See the Lesson Plan.)
2. Say **Now is your chance to come up with your own search terms.**
3. Distribute pens or pencils and form pairs of students. Give partners about five minutes to write a plan containing their search terms.
4. When students are finished writing, invite volunteers to come up to the board and write their search terms.
5. Using the classroom computer, use one of the search terms on the board and project the results on your smartboard. Discuss the relevance of the results.
6. Continue in the same with the other search terms listed on the board.

## REVIEW

**AIM:** To check and consolidate the knowledge that students have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine 15: Test a Partner.**

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; to encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine 17: 3-2-1.**
- **OPTIONAL:** Write the list on the board for students to copy.

## BE THE EXPERT

Nearly 93% of all web traffic comes via a search engine. According to StatCounter®, across Africa 96% of users use Google® as their main search engine.

Search engines can be vital to help us locate the information we need, but choosing the search terms carefully, omitting unnecessary words, and using the tips in the Learn section of the Student's Book can really help to make the search more targeted and accurate.

### TEACHING TIP

Google®, and Yahoo® are among the most popular search engines in the world. Each of them has their own procedures and conventions for doing online searches. You might want to spend some time reviewing these procedures with your class. Look up "Search the web on Google," for example, and read the directions aloud so that your students are familiar with the procedures for the search engine that they use most often.

### HOME-SCHOOL CONNECTION

#### Life skill: Learning to know: critical thinking

Give students a topic that you would like them to research while at home. You might choose a popular movie, for example, or a nearby attraction. Have them create their own search terms and practice looking up related information with a family member. Ask students later to share with the class about any surprises or problems that came up during their search and how they dealt with it.

## LESSON 4 pp. 60–61

### Learn by doing

#### COMPREHENSION

**AIM:** To practice using vocabulary related to online searches.

**TIME:** 3–5 minutes

##### 1 Look and match

1. Read the task aloud. Explain that students must match words in the blue box with their definitions below.
2. Form pairs of students. Have them do the activity together.
3. Reconvene and share answers with the class so that students can check their work. (Answers: **1b**; **2a**; **3c**.)

**OPTIONAL:** To extend the activity, have partners creating sentences of their own with the vocabulary in the blue box. Afterwards, call on different students to write their sentences on the board. Give feedback on usage and meaning as appropriate.

**AIM:** To practice explaining the meaning of search procedures in their own words.

**TIME:** 3–7 minutes

##### 2 Look and write

1. This task raises the issues of technological awareness: how they can best exploit the internet. Read the task aloud. Explain that students must work together in writing explanations for the terms shown. Tell them that “sign” refers to the word or phrase used in a search term.
2. Form pairs of students. Have them do the activity together.

### Learn by doing

## LESSON 4 How to search online

#### Comprehension

##### 1 Look and match

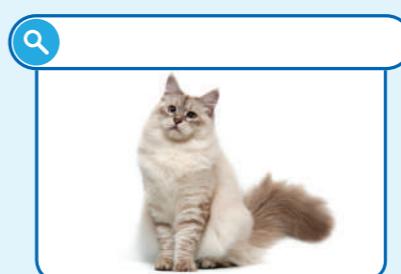
Match the words with their meanings.

1. browser    2. search engine    3. results

- a software application that carries out web searches
- a software application that is used for accessing information on the internet
- a list that is compiled based on a search

**Topic 2:**  
You would like to do a search on different breeds of cats. You want to avoid getting the following results:

- the play or the film
- cat products for sale
- cat jokes



##### 2 Look and write

When might you type the following characters when searching a topic online?

- + sign: \_\_\_\_\_
- sign: \_\_\_\_\_
- quotation marks: \_\_\_\_\_

#### Critical thinking

##### 3 Think and write

Think about what you learned about searching smartly. Read each topic and decide what you would type to search for it. Remember, you can include special characters that can help to narrow your search.

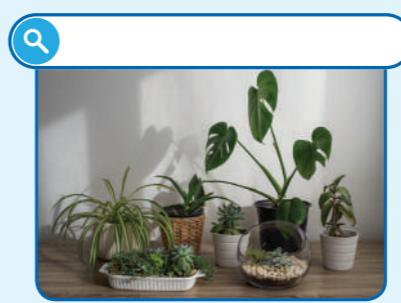
#### Topic 1:

You are searching for information about football leagues in your area. Think about what you want to avoid in your search, and ways that it could be narrowed to focus specifically on what you need.



60

**Topic 2:**  
You are researching different types of plants. You want to focus your search on plants that can survive with no direct sunlight.



#### ICT and me

##### 4 Think and answer

1. What topics are you most interested in searching for online? Why?

---



---



---

2. When might you decide to search with a picture instead of typing text?

---



---



---

3. Reconvene and share answers with the class so that students can check their work. (Answers: **1. Put + before a word that you want to be included in the results; 2. Put – before any words that you don't want included; 3. Use quotation marks for phrases that you want to appear in the results.**)

61

61

#### CRITICAL THINKING

**AIM:** To practice creating their own search terms.

**TIME:** 7–10 minutes

##### 3 Think and write

1. Read aloud the directions and then form small groups. Have them read about each topic and practice creating a related search term.
2. Have groups do the activity together. Circulate as they work and provide assistance as necessary.
3. Reconvene and ask the class to look once again at the first topic. Call on volunteers to come up to the board and write a search term they would use to learn about a football league they like.

(Suggested answers: **Topic 1:** “football leagues” + **area name.** **Topic 2:** **cats** – show; **cats** – food and products; **cats** – jokes. **Topic 3:** **house plants** + **no direct sunlight**)

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Determining the signs in the lesson (+, –, « ») in the student's book or on cards or writing them on the board.	- Supporting students by asking their classmates to help them write.				
- Determining safe search steps in concise and specific points.	- Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible.				
- Writing the vocabulary (browsers, search engines, results) on the board or highlighting them in the Student's Book.	- Including them in groups and giving them tasks according to their disabilities.				

#### ICT AND ME

**AIM:** To give students an opportunity to reflect on their own approaches to online research.

**TIME:** 10 minutes

##### 4 Think and answer

1. Read through the task and verify that students understand the prompts.
2. Distribute writing paper and pens or pencils. Give students enough time to write out their responses to the questions. Circulate as students work and provide assistance as necessary.
3. Invite several volunteers to read aloud their responses for the class.

**OPTIONAL:** Use the activity as an opportunity to lead a discussion about students' preferred methods for finding information online. Invite them to share how they look up information and whether those methods tend to get them the results they are looking for.

#### EXTENSION ACTIVITIES

1. Encourage students to take turns doing searches on a classroom computer. View the results together as a class and discuss the results: **Did the search term lead to useful results? How could the search term be improved?**
2. Play a game with students that will help them practice their search skills. First, form teams. Then write a question on the board, such as **What is the capital of Bulgaria?** Have one team come to the computer and search for the answer. Time how long it takes them on a stopwatch. Then write another question on the board for the second team, such as: **Do elephants live in Asia?** Time them as well. The team that found the answer in the least amount of time is the winner.

## LESSON 5 pp. 62–63

# How to check whether information online is true

## OBJECTIVES

- Identify the characteristics of a reliable online resource.
- Describe reliable and non-reliable sources of information online.
- Explain the purpose of the Egyptian Knowledge Bank.

## LIFE SKILLS

- Learning to know: critical thinking

## VALUES

- Academic values: curiosity, objectivity

## ISSUES AND CHALLENGES

- Issues of globalization: digital citizenship

## MATERIALS NEEDED

- Printouts of web pages from three different sources, all on the same topic, e.g. genetically modified foods (Explore)
- Names of websites on strips of paper (Extension)
- Poster paper and pens (Extension)

## LESSON 5 How to check whether information online is true

### Objectives

By the end of the lesson, I will be able to:

Identify the characteristics of a reliable online resource.	After the lesson, check the correct box: <b>I can ...</b>		
Very well	OK	Need more work	
Describe reliable and non-reliable sources of information online.	Very well	OK	Need more work
Explain the purpose of the Egyptian Knowledge Bank.	Very well	OK	Need more work

### Engage

How do you know whether information you find online is true?

### Learn

There are countless online sources that provide valuable information. However, not all online sources are reliable.

### Unreliable online sources

Social media apps and websites can connect you to information you may be looking for. For instance, you may find a group page that contains information on a subject you've been researching.

The information could include some credible information, but it could also include opinions, errors, or even lies. These types of sources are usually not reliable. Wiki sources and blogs are also not very reliable, for the same reasons.



## OBJECTIVES

**AIM:** To ensure that students understand the objectives of the lesson.

**TIME:** 2–3 minutes

- Follow the steps for **Routine 3: Understanding Objectives**.

- Draw students' attention to the objectives. Say **To meet the objectives of a lesson, it's a good idea to make sure that you understand what the objectives are actually saying.** (See the Lesson Plan.)
- Read the objectives aloud to the class.
- Ask **Are there any words or phrases in the objectives that you don't understand? What are they?**
- Explain any unfamiliar terms or vocabulary. Some students, for example, may be unfamiliar with the Egyptian Knowledge Bank. Explain: **The Egyptian Knowledge Bank is an online**

resource for teachers, students, and the public in general. It has links to books, articles, and all kinds of information. We'll be learning more about it in this lesson.

- Remind students that they will check the **I can** boxes after completing the lesson.

## ENGAGE

**AIM:** To enable students to participate confidently and collaboratively in a class discussion that leads to the objectives of the lesson.

**TIME:** 2–5 minutes

- This task helps to develop the important value of curiosity. Follow the steps for **Routine 4: Think-Pair-Share**.

**OPTIONAL:** To help students retain key concepts, summarize the class discussion by writing one or two pointers on the board.

## LEARN

**AIM:** To preview the passage with students so that they can build context before reading.

**TIME:** 10–15 minutes

- Follow the steps for **Routine 6: Preview**.
  - Say **Previewing an article before you read can help you build context. You will have an idea what the article is about before you even start reading. It's a good habit to get into because it will help you understand and remember what you read.**
  - Read aloud the first sentence. Tell students that the first sentence of a reading passage is called a "topic statement". It gives the main idea of the article and the ideas or information that will be covered.
  - Direct students' attention to the subheads. Say **Subheads also give clues about the ideas and information that will be covered. Based on the subheads you see here, what do you think the article is about?** (Answers: **Unreliable and reliable online sources**.)
  - Tell students to keep their guesses in mind as they read the article. When they finish, ask if their guesses were correct.

## Confirming reliable sources

When reviewing online sources, check to make sure the date of the publication is current. Check the authors - who are they? Are they experts in their field? Ask your teacher or a family member to help you check. A reliable source will be well-written, with almost no mistakes. The design of the page will look professional.

Websites with .com may be credible, but they are often run by businesses trying to sell you something. Websites with .gov, .org, and .edu can be particularly credible. They are run by government agencies, non-profit organizations, foundations, colleges, and universities.

### The Egyptian Knowledge Bank



The Egyptian government is doing its best to protect its citizens from unreliable online sources. In January 2016, the Egyptian Knowledge Bank (EKB) offered free access to their library to Egyptian citizens. The library contains materials on various subjects. All information has been verified as accurate. You can feel confident that the information provided by the EKB is reliable.

Researching online can be a lot of fun, but it can also be challenging. Remember, knowledge is power. Use what you learned here to help you determine if an online source is credible.

### Explore

Read the printouts that your teacher gives you. Work with a partner to decide which sources are reliable and which are not. Explain your reasoning.

### Review

1. Discuss what makes a source reliable and what makes a source unreliable.
2. When will you use the Egyptian Knowledge Bank? Why?

### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

63

## EXPLORE

**AIM:** To practice evaluating the reliability of different websites.

**TIME:** 5–10 minutes

1. Introduce the Explore topic, which encourages students to develop the important value of objectivity when thinking about sources of information. Read the task aloud. (See the Lesson Plan.)
2. Say **Now is your chance to practice evaluating websites.**
3. Form groups. Distribute printouts of web pages from different sources on the same topic. For example, if you choose a topic such as “genetically modified foods,” you can distribute printouts from: a) an editorial or personal opinion about GMOs; b) a fact-based encyclopedia article; c) an informative article sponsored by a company that produces GMOs.
4. Have groups look at each printout and evaluate how reliable the information is, based on its source.
5. When students are finished, lead a discussion with the whole class about the strengths and weaknesses of each source.

## REVIEW

**AIM:** To check and consolidate the knowledge that students have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine 15: Test a Partner.**

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; to encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine 17: 3–2–1.**

## BE THE EXPERT

The Egyptian Knowledge Bank was launched in 2016. Its online library includes content provided by Cambridge University Press, Cengage Learning, Encyclopedia Britannica, and National Geographic. Egyptian nationals can access the EKB free of charge by establishing a personal account with their National ID number and valid email address.

### TEACHING TIP

If you have a computer that is connected to a smartboard, give students a guided tour of the EKB. You can visit the site through your own account, or you can show students video clips (available on YouTube, youm7, and other streaming sites) that explain the EKB's structure and functionality.

### HOME-SCHOOL CONNECTION

#### Globalization: Digital citizenship

Encourage students to start their own account with the Egyptian Knowledge Bank. You may want to send a flyer home with students explaining to parents and carers how to start an account.

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
Preparing a mind map about website links (.org, .edu, .gov, .com) and explaining it in a clear and simplified way.	- Supporting students by asking their classmates to help them write. - Making their responses simpler, they could be oral responses, signs or hand gestures, or answers via a computer, if possible. - Including them in groups and giving them tasks according to their disabilities.				

## LESSON 5 pp. 64–65

### Learn by doing

#### COMPREHENSION

**AIM:** To check student comprehension of vocabulary and concepts covered in this lesson.

**TIME:** 7–10 minutes

##### 1 Read and answer the questions

- This activity encourages students to think about digital citizenship and how important this is as one of today's issues. Read the directions aloud. Explain that students should write their responses to each of the prompts.
- Form small groups. Have group members do the activity together.
- Reconvene and share answers with the class so that students can check their work.

#### Answers:

- .gov.eg c, .org.eg a, .edu.eg d, .com b
- a To promote the organisation's work and explain what the organisation is.
- b To explain the business and promote what the business sells.
- c To explain government departments and rules.
- d To teach people about different subjects.
- These websites can be reliable because they are created by businesses and organisations so the information in them is checked before it is put onto the website.
- Because they are often people's opinions so are not reliable sources of facts.

**Note:** You might want to point out that commercial sites in particular may have a bias because they are usually trying to sell something.

#### GRAPHIC ORGANIZER

**AIM:** To think about and list the websites that they frequently visit.

**TIME:** 3–5 minutes

##### 2 Think and write

- For the first step, have students work independently. In the space provided, they should write the names of websites that they know about or like to visit.
- When students are finished, invite volunteers to share their list with the class.

### Learn by doing

## LESSON 5 How to check whether information online is true

#### Comprehension

##### 1 Read and answer the questions

1. Match the website domains to the types of groups that run them.

.gov.eg	<input type="checkbox"/>	a. Egyptian organizations
.org.eg	<input type="checkbox"/>	b. commercial sites
.edu.eg	<input type="checkbox"/>	c. governmental sites
.com	<input type="checkbox"/>	d. educational sites

2. What do each of the groups above use their website to do or to promote?

- a. Egyptian organizations \_\_\_\_\_
- b. commercial sites \_\_\_\_\_
- c. government sites \_\_\_\_\_
- d. educational sites \_\_\_\_\_

3. Why can the above website domains be reliable sources of information?

\_\_\_\_\_

4. Why are blogs and social media sites usually not reliable sources of information?

\_\_\_\_\_

#### Graphic organizer

##### 2 Think and write

1. What websites have you visited or heard about? Write a list.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

64

2. When researching information, it is important to understand which types of sources are reliable, and which are not. Look at your list of websites. In the chart below, write which ones are reliable sources of information, and which ones are not. Your teacher can help you.

Reliable sources	Unreliable sources
_____	_____
_____	_____
_____	_____
_____	_____

#### Critical thinking

##### 3 Think and answer

Explain why the sources you listed in the chart above are reliable or unreliable.

Reliable:

\_\_\_\_\_

\_\_\_\_\_

Unreliable:

\_\_\_\_\_

\_\_\_\_\_

#### ICT and me

##### 4 Write a summary

In Lesson 8, you will present research on a topic. How will you use what you learned in this lesson to prepare you to do research? How will you choose sources to use for your presentation? How will you determine which sources are reliable, and which ones are not?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

65

- Tell the class that now you would like them to decide whether these websites are reliable sources of information. Have them do the second part of the activity by filling out the chart.
- When students are finished filling out the chart, have them share their work with a classmate. Partners can discuss their evaluations of the reliability of each website, explaining whether or not they agree with each other and why or why not.
- Reconvene the class and ask if there were any disagreements about the reliability of a particular website. Call on volunteers to summarize the discussion they had with their partner, and then ask the rest of the class for their opinion. Provide guidance and feedback as necessary.

## CRITICAL THINKING

**AIM:** To reinforce criteria used in evaluating the reliability of online resources.

**TIME:** 3–5 minutes

##### 3 Think and answer

- Read aloud the task and have students work independently. Say Remember our discussion and the different points that came up. Use what you learned to write about the sites you think are reliable and the ones you think are unreliable.
- Circulate as students work and provide assistance as necessary.
- Call on volunteers to read aloud their responses for the class.

## ICT AND ME

**AIM:** To review key concepts and help students prepare for the presentation in Lesson 8.

**TIME:** 7–10 minutes

##### 4 Write a summary

- Read through the task and verify that students understand the questions.
- Have students work independently. They can write their responses in the space provided or on writing paper if they need more room.
- When students are finished writing, lead a class discussion about the importance of using reliable sources when doing online research. Students can refer to their written responses to help them participate in the discussion. Take notes on the board to summarize the key ideas.

## EXTENSION ACTIVITIES

- Reinforce key concepts by writing the names of different websites on strips of paper. (Use the names of websites that have been covered in the course of this lesson.) Put the strips of paper on a desk or tabletop and have students sort them into two groups: "Reliable Sources" and "Unreliable Sources". You can even turn it into a game by forming teams. The first team that sorts the strips of paper correctly wins.
- Have the class create a poster listing their "Top 10" websites. They can give the name of the website (e.g., National Geographic) and the website's URL (nationalgeographic.com). Tell students they might want to refer to this list whenever they need a reliable source for looking up information.

## LESSON 6 pp. 66–67

# Who can help you with online problems?

### OBJECTIVES

- Explain common online problems.
- Identify who can help me with online problems.
- Describe the role of General Department for Combating Internet Crimes in Egypt.

### LIFE SKILLS

- Learning to do: decision-making
- Learning to live together: empathy

### ISSUES AND CHALLENGES

- Citizenship issues: legal awareness
- Issues of globalization: digital citizenship

### MATERIALS NEEDED

- Writing paper and pens (Explore)
- Craft paper, crayons, and colored pencils (ICT and me)

## LESSON 6 Who can help you with online problems?

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Explain common online problems.
- Identify who can help me with online problems.
- Describe the role of General Department for Combating Internet Crimes in Egypt.



### Engage

If someone was unkind to you online, what would you do? Who would you tell?

### Learn

#### Online bullying and how to avoid it

Bullying is repeated unkind behavior towards someone. Online bullying can include mean posts, messages, or texts. They may be shared with just you, or with others, too. Our devices are always with us, so it can be hard to escape this kind of bullying. This may make you feel trapped.

So, make sure not to contact anyone you don't know and to ask your teacher or a family member for help in any situation that may be dangerous to you.

## LEARN

**AIM:** To preview the passage with students so that they can build context before reading.

**TIME:** 10–15 minutes

- Follow the steps for **Routine 6: Preview**.
  1. Say **Previewing a text before you read can help you build context**. You will have an idea what the article is about before you even start reading. It's a good habit to get into because it will help you understand and remember what you read.
  2. Read aloud the first sentence. Remind students that the first sentence of a reading passage is called a "topic statement". It gives the main idea of the article and the ideas or information that will be covered.
  3. Direct students' attention to the subheads. Say **Subheads also give clues about the ideas and information that will be covered**. Based on the subheads you see here, what do you think the article is about? (Answers: **Online problems**)
  4. Tell students to keep their guesses in mind as they read the article. When they finish, ask if their guesses were correct.

### OBJECTIVES

**AIM:** To ensure that students understand the objectives of the lesson.

**TIME:** 2–3 minutes

- Follow the steps for **Routine 3: Understanding Objectives**.

### ENGAGE

**AIM:** To discuss a photo that accompanies reading as a way of generating interest and activating background knowledge.

**TIME:** 3–5 minutes

1. Have students look at the photo that accompanies the text. Ask questions that prompt students to put themselves in the boy's position and to think about how he feels. This shows the important life skill of empathy.

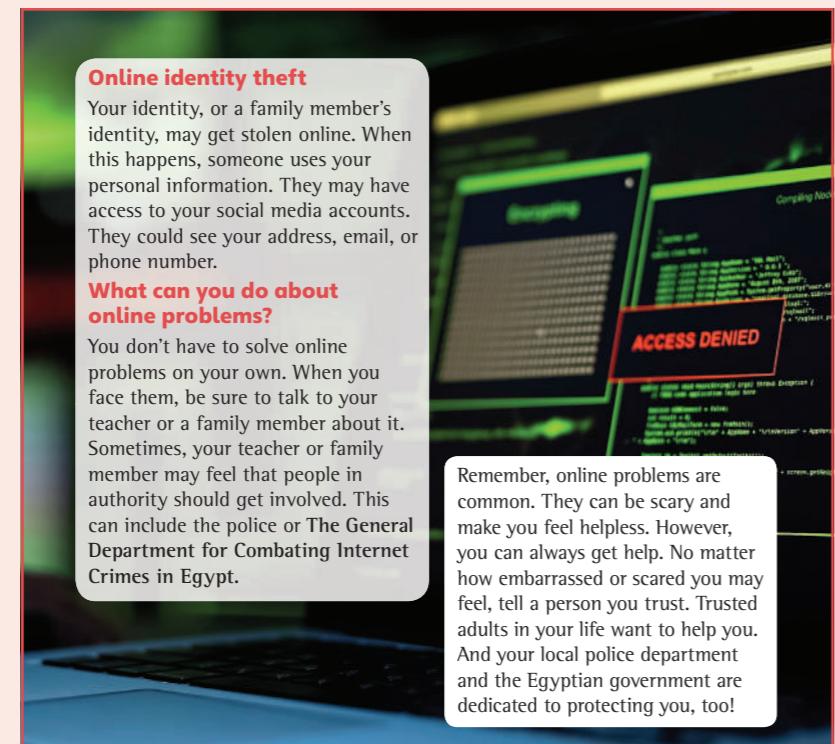
Say **The boy is looking at his phone. Do you think he's looking at the news or at social media? Why do you think so?** If students haven't mentioned it, suggest that the boy might be the target of online bullying. Say **The boy looks very worried. Maybe somebody made an online comment about him that isn't nice. Now he's wondering what he should do.** Ask students what advice they would give the boy.

2. Use the Engage questions to help students place themselves in a hypothetical situation similar to the one that the boy is facing. Be sensitive to the possibility that some students may have personal experience with online bullying and may not want to share. End the conversation by suggesting that it's a good idea to talk with others whenever students feel like they've been the target of online bullying.

### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
---	--------	--------------------	---------------------	-------------------------------------	------------------------

- Presenting the lesson by letting integrated SEND students act it like a play to better clarify the idea of bullying.
- Taking into consideration the possibility of integrated SEND students being bullied and encouraging them to face that without fear or hesitation and to discuss what happened with others.



#### Online identity theft

Your identity, or a family member's identity, may get stolen online. When this happens, someone uses your personal information. They may have access to your social media accounts. They could see your address, email, or phone number.

#### What can you do about online problems?

You don't have to solve online problems on your own. When you face them, be sure to talk to your teacher or a family member about it. Sometimes, your teacher or family member may feel that people in authority should get involved. This can include the police or The General Department for Combating Internet Crimes in Egypt.

Remember, online problems are common. They can be scary and make you feel helpless. However, you can always get help. No matter how embarrassed or scared you may feel, tell a person you trust. Trusted adults in your life want to help you. And your local police department and the Egyptian government are dedicated to protecting you, too!

#### Explore

Think about the different types of online problems you learned about in this lesson. Which ones do you think you might try to resolve on your own? Which ones would you ask your teacher or a family member to help you with? Make a list for each and explain why. Then compare lists with a partner.

#### Review

1. What are some common online problems? Who can help you solve them?
2. Discuss the role of The General Department for Combating Internet Crimes in Egypt.

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

67

## EXPLORE

**AIM:** To practice deciding which kinds of online problems can be resolved by oneself, and which ones require assistance.

**TIME:** 5–10 minutes

1. Introduce the Explore topic, which helps students develop the important life skill of decision-making. Read the task aloud and check to make sure students understand the prompt. (See the Lesson Plan.)
2. Say **Being able to decide when you can resolve a problem on your own and when to get help is an important skill. Let's practice!**
3. Distribute writing paper. Have students use the paper to create a chart with two columns labeled **OK to deal with on my own** and **Time to get help**.
4. Tell students to refer back to the article: **Which situations are OK for you to deal with on your own? Which situations require help? Take notes in your chart.**
5. When students are finished, form pairs and have partners share their work with each other. Encourage them to discuss any differences of opinion.
6. Afterwards, reconvene the class and lead a class discussion on appropriate ways of dealing with online problems.

## REVIEW

**AIM:** To check and consolidate the knowledge that students have learned today.

**TIME:** 5–10 minutes

- Follow the steps for **Routine I5: Test a Partner.** When answering the questions, it will help students be aware of the important issues of legal awareness when using the internet.

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop.

**TIME:** 5–7 minutes

- Follow the steps for **Routine I8: Promise!**

**OPTIONAL:** Invite students to share the promises they wrote. Possible responses include: **I'm going to be more careful when I'm online. If I feel like I might be the target of an online attack, I will ask other people for help.**

## BE THE EXPERT

The General Department for Combating Internet Crimes in Egypt is responsible for developing a national strategy to face and respond to cyber threats.

### TEACHING TIP

Explore the topic of online bullying by posing hypothetical situations to the class and asking students how they would respond, for example: **Let's say you have a friend on your social media account. He responds to every one of your posts, but not in a friendly way. He or she always criticizes your posts and makes fun of your photos. Sometimes he or she even reposts to his or her own account. How would you handle the situation?** (Suggested answer: **I would block this person from my account; I would tell my parents.**)

### HOME-SCHOOL CONNECTION

#### Globalization: Digital citizenship

Encourage students to share what they have learned with family members. Encourage them to ask family members for their own tips and advice on how to deal with online problems.

## LESSON 6 pp. 68–69

### Learn by doing

## ISSUES AND CHALLENGES

**AIM:** To monitor and reinforce comprehension of key concepts covered in this lesson.

**TIME:** 7–10 minutes

### 1 Read and choose

- This section again encourages students to think about the life skill of empathy. Read the task aloud. Then form pairs or small groups and have them work together in reading the scenarios and then checking the box that shows what they think is the most appropriate reaction.
- Bring the class together as a whole group and invite a representative from each group to share their responses. Use their responses to lead a class discussion about appropriate ways of reacting to different situations.

(Suggested answers: 1d, 2c)

## COMPREHENSION

**AIM:** To monitor and reinforce comprehension of key concepts covered in this lesson.

**TIME:** 3–5 minutes

### 2 Think and answer

- Read aloud the task. Ensure that students understand vocabulary such as *platform*, *commit*, and *identity theft*.
- Have students write their responses to the questions independently.
- When students are finished, call on volunteers to share their answers with the class. Provide feedback as necessary, making sure that students understand what kinds of behavior would be appropriate in each situation.

### Learn by doing

## LESSON 6 Who can help you with online problems?

### Issues and challenges

#### 1 Read and choose

Read the situations and check the best answer.

- Your friend is getting bullied online. He/ She is upset. What do you say to your friend?
  - You're being a bit silly about this. Get over it!
  - Let's bully them back!
  - We should get their personal information and post it for everyone to see. Then they will stop.
  - You need to tell your teacher or a family member, even if you don't want to
- You accidentally end up on a website that includes bad language and scary images. What do you do?
  - Forward it to a friend and ask if this is something you should show to your teacher or a family member.
  - Look for contact information on the site so you can send a complaint.
  - Leave the site immediately. Ask your teacher or a family member to help set parental controls on your device.
  - Leave the site immediately, and never go online again.

### Comprehension

#### 2 Think and answer

Read and answer the questions.

- What would you do if you were bullied on a social media platform?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- When someone tries to commit online identity theft, what information might they look for?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Who should you turn to when you experience online problems? why?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

68

### ICT and me

#### 3 Think and write

Imagine that The General Department for Combating Internet Crimes in Egypt is looking for junior volunteers to help them protect its citizens from cyberattacks. You have been chosen to lead the Junior Division!



- Choose three friends, siblings, or classmates to be part of your cybersecurity group. Write their names and explain their roles.

Name	Role

- You need to choose your teacher or a family member to oversee your group. Who would you choose, and why?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Give some examples of how your group would help protect others from online threats.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- The General Department for Combating Internet Crimes in Egypt wants to give each member of your group a special badge for all your hard work. Draw a picture of what the badge might look like. Include images or words that relate to online security.

69

## ICT AND ME

**AIM:** To review key concepts and help students prepare for the presentation in Lesson 8.

**TIME:** 8–10 minutes

### 3 Think and write

- Remind students that we are all digital citizens, and this activity raises awareness of the important issue of digital citizenship. Read through the task and verify that students understand how they are supposed to fill out the chart. If students need help thinking of roles, suggest the following: *Secretary*, *Adviser*, *President*. Have students work independently in filling out the chart.
- In the space provided, have students write the name of one trusted adult. Ask them to explain why they chose this person to oversee their group.
- Continue by having students give written descriptions of how their groups would help to protect other children from online threats.
- In the box at the bottom of the page, have students draw a sketch of a symbol or image that they would like to see on their group's badge. Form groups and have students share their sketches with each other.

**OPTIONAL:** Have students draw the designs for their badges on craft paper, then display their creations on the wall.

## EXTENSION ACTIVITIES

- Hold a “security meeting” of The General Department for Combating Internet Crimes. Ask council members to discuss the most common dangers faced by children who go online without adult supervision. Have a secretary take notes on possible solutions and action items. Afterwards, post the notes on a bulletin board as a kind of briefing.
- Hold a contest for the best badge design. Display the winning design in a prominent place in the classroom.

## LESSON 7 pp. 70–71

# My personal digital safety plan

### OBJECTIVES

- Describe the importance of creating strong passwords.
- Explain the importance of good anti-virus software.
- Explain ways to protect devices from online dangers.

### LIFE SKILLS

- Learning to know: creativity; critical thinking

### VALUES

- Academic values: objectivity

### ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

### MATERIALS NEEDED

- Pens, pencils, and highlighters (Learn)
- Crayons and colored markers, drawing paper (Critical thinking)

## LESSON 7 My personal digital safety plan

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Describe the importance of creating strong passwords.
- Explain the importance of good anti-virus software.
- Explain ways to protect devices from possible online dangers.

Very well	OK	Need more work
Very well	OK	Need more work
Very well	OK	Need more work

### Engage

Why is it important to have strong passwords?  
What is anti-virus software? Do you have anti-virus software on your devices?

### Learn

#### Creating strong passwords

It is important to have strong passwords. If your passwords are easy to guess, people can get into your computer or accounts. This is called hacking and the people who do it are called hackers.

Don't use the same password for all your accounts. If someone gets your password, they will be able to access your other accounts, too.

It is tough to remember a lot of passwords. Use a password manager or keep a list of your passwords in a safe place that only you and your teacher or a family member have access to.

Your password shouldn't include your name or other personal details. It should be at least eight characters long. A strong password will include letters, numbers, and special characters.



### OBJECTIVES

**AIM:** To encourage students to take responsibility for their own learning needs and paths.

**TIME:** 2–3 minutes

- Follow the steps for **Routine 2: What Do I Need to Do**

**OPTIONAL:** Return to the student-generated list at the end of the lesson. Go through the list and verify that students have accomplished all of the objectives. If necessary, provide tips and/or resources that will help them accomplish any remaining goals.

## ENGAGE

**AIM:** To engage students in a discussion that leads to a lesson objective or life skill; to use critical thinking to investigate clues in photos.

**TIME:** 2–5 minutes

- This activity raises another important issue for students: the technological awareness of keeping safe online through passwords. Follow the steps for **Routine 5: Photo Detectives!**

## LEARN

**AIM:** To take notes while reading to self-monitor comprehension.

**TIME:** 10–12 minutes

- Follow the steps for **Routine 8: Taking Notes**.
  - Say **Taking notes while you read is a good way to make sure you are following the text**. Look out for big ideas and words you don't understand. Use a pencil to draw a line under the most important words. Or you can circle them. Another way is to use a highlighter. If you don't understand something, look it up in a dictionary. You can also ask me if you need help. Then write the word's meaning in the margin.
  - Have students read the text and take notes as directed.
  - When they are finished, remind students that taking notes while reading is a good skill to develop, but before doing, so they should make sure it is OK to write in the material provided to them.

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Making a 2-column table, writing in the first column simple and short sentences about the steps to follow in creating a strong password, and in the second column giving an example for each step. Similarly, giving examples of weak passwords, and emphasizing the difference between the two. - Using visual flowcharts based on the continuity and sequence of the practical procedural steps of the ICT programs (creating strong passwords).					



**Choosing anti-virus software**

A computer virus can cause big problems, such as sending an email to everyone on your computer or deleting your files. You should always protect your devices with anti-virus software. Choose software that protects your device and is easy to use.

A good anti-virus software catches viruses before they affect your device. It can also remove viruses that have already affected your device. It can fix damaged files.

**Be careful while using the internet**

You should be aware of the importance of staying safe while using the internet. You can be safer by using different passwords for your accounts on different websites including social media platforms like Facebook, and email sites. You also need different passwords for your digital devices (computer, laptop, tablet, mobile phone) and by installing anti-virus softwares on those devices.

There are websites that offer security services for your accounts. They do this by giving you instructions to follow for creating passwords for your personal accounts. Make sure you choose strong passwords which nobody can guess.

**Explore**

Ask how different people protect their devices. Use what you learned in Learn to create a personal online safety plan. Compare your plan with your classmates'. Update your plan if you find new, helpful information.

**Review**

1. Is it better to have one password or different passwords? Explain.
2. Discuss features that make good anti-virus software.

**Self-assess**

Go to the Objectives at the beginning of the lesson. Check the correct **I can ...** box.

71

## EXPLORE

**AIM:** To lead this activity in a way to meet the objectives while also linking in to what they have learned so far.

**TIME:** 5–10 minutes

- This activity develops students' life skills in creativity. Follow the steps for **Routine I4: The 2 to 4 Discussion**.

**OPTIONAL:** When groups are finished sharing their personal online safety plans, call on volunteers and ask them to share what they learned from other group members.

## REVIEW

**AIM:** To explore ideas and information that were introduced through the reading passage in Learn.

**TIME:** 7–10 minutes

- This activity reinforces the important value of objectivity: knowing what is and is not safe online. Follow the steps for **Routine I2: Time for a Discussion!**

1. Tell students that the class will discuss these questions as a way of reviewing the material that they just read.

2. Read aloud the questions in Review and invite students to respond. Provide feedback as the discussion progresses, helping to clarify meanings from the text as necessary.

3. When the discussion has concluded, ask students to share about one thing from the discussion that they want to remember.

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop; to encourage critical thinking.

**TIME:** to be completed at home

- Follow the steps for **Routine I7: 3–2–1**.

**OPTIONAL:** Invite students to share about something they have learned so far.

## BE THE EXPERT

Many personal computers will automatically generate passwords and save them for the user. The advantage of this is that users don't have to remember passwords for all their different accounts. One possible drawback is that accounts could be hacked if a user's computer or personal device were lost or stolen. Fortunately, many computers and devices have now implemented two-factor authentication and fingerprint recognition software to prevent thieves from hacking into accounts on stolen devices.

### TEACHING TIP

Some students are more visual learners, and it may help them to retain the information presented in this lesson if they could see it in a visual format.

Go to a free video sharing website such as YouTube and look up "passwords" or "password manager".

View the clip with students and then ask if they have any remaining questions.

### HOME-SCHOOL CONNECTION

#### Globalization: Digital citizenship

Encourage students to share what they have learned with family members. Encourage them to ask family members about the guidelines they follow for protecting the safety of their online accounts.

### Teaching support for an integrated classroom

Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
Determining the key words in the lesson and emphasizing them (password, email, electronic devices, ipad, cell phone).					

## LESSON 7 pp. 72–73

### Learn by doing

#### LIFE SKILLS

**AIM:** To practice evaluating hypothetical passwords for their strengths and weaknesses.

**TIME:** 7–10 minutes

##### 1 Look and answer

1. Read the task aloud. Then form pairs or small groups and have them work collaboratively in evaluating each password's strengths and weaknesses. Have them take notes in the spaces provided.
2. Bring the class together as a whole group. Draw students' attention to the first password and call on one group to share their opinion on the password's strengths and weaknesses. Ask if the rest of the class has anything else they would like to add. Provide your own feedback as well, highlighting that is generally not a good idea to include one's name in a password.
3. Repeat the same procedure for the remaining passwords that are shown. Remind students that they should use what they have learned when creating their own passwords.

**AIM:** To provide an opportunity for students to review key points to consider when creating a password.

**TIME:** 7–10 minutes

##### 2 Think and answer

1. Read the task aloud. Have students work independently in writing their responses to the prompt.
2. Bring the class together as a whole group. Ask them to provide examples of weak passwords. As they do so, create a list of "bad" passwords on the board. Then go through the list, asking students why these passwords are weak or unsafe.
3. Repeat the same procedure, this time focusing on passwords that could be considered strong, or safe.

### Learn by doing

## LESSON 7 My personal digital safety plan

#### Life skills

##### 1 Look and answer

Are these passwords secure? Suggest ways they can be made more secure.

1.  Abdelaziz456

---

---

---

2.  dQvI!4@vtM

---

---

---

3.  abcl23

---

---

---

##### 2 Think and answer

Create your own example of a weak password and a strong password. Explain why each is either weak or strong.

1. 

---

---

---

2. 

---

---

---

72

#### Critical thinking

##### 3 Think and write

Anti-virus software keeps you safe while you are online. How does good anti-virus software protect your computer?

---

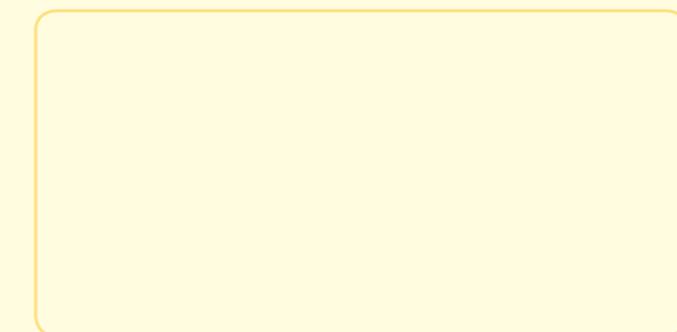
---

---

---

##### 4 Think and draw

1. Design a logo for anti-virus software. Draw the logo here.



2. Describe your anti-virus logo. Explain why people should choose this anti-virus software.

---

---

---

---

## CRITICAL THINKING

**AIM:** To reinforce what students have learned about anti-virus software.

**TIME:** 5–7 minutes

##### 3 Think and write

1. This task further allows students to practice the life skill of technological awareness. Read aloud the task.
2. Have students work independently in writing their answers.
3. When students are finished, call on volunteers to share their ideas with the class.

**AIM:** To reinforce what students have learned about anti-virus software through a drawing activity.

**TIME:** 6–8 minutes

##### 4 Think and draw

1. Read aloud the directions. Ask students to visualize what their anti-virus software looks like.
2. Distribute crayons, markers, or colored pencils. Have students design and draw their logo.
3. Invite students to take turns sharing their work with the class. Encourage them to stand in front of the class while they show their logos and explain about their anti-virus software.

## EXTENSION ACTIVITIES

1. Invite students to research different anti-virus software for homework. They can report back on what it does in the next lesson.
2. Ask students to research what can happen if computers do not have anti-virus software.

## LESSON 8 pp. 74–75

# Practicing what you learned

## OBJECTIVES

- Discuss topics that I would like to research with my classmates.
- Identify an important topic to raise awareness.
- Choose a suitable presentation tool.

## LIFE SKILLS

- Learning to do: collaboration

## VALUES

- Co-existence values: participation
- Personal values: independence

## ISSUES AND CHALLENGES

- Issues of globalization: technological awareness

## MATERIALS NEEDED

- Classroom computer or access to school library (Life Skills)
- Chart paper, crayons, markers, or felt-tipped pens (for students who choose to create posters) (Life skills, Create your presentation)
- Smartphones with built-in video cameras (for students who choose to create short videos) (Life skills, Create your presentation)
- Tablets, laptops, or desktop computers with PowerPoint® presentation software (for students who choose to create slide shows) (Life skills, Create your presentation)

## LESSON 8 Practicing what you learned

### Objectives

By the end of the lesson, I will be able to: After the lesson, check the correct box: **I can ...**

- Discuss topics that I would like to research with my classmates.
- Identify an important topic to raise awareness.
- Choose a suitable presentation tool.

Very well	OK	Need more work
Very well	OK	Need more work
Very well	OK	Need more work

### Engage

What topic are you interested in researching? Why? What do you already know about that topic?

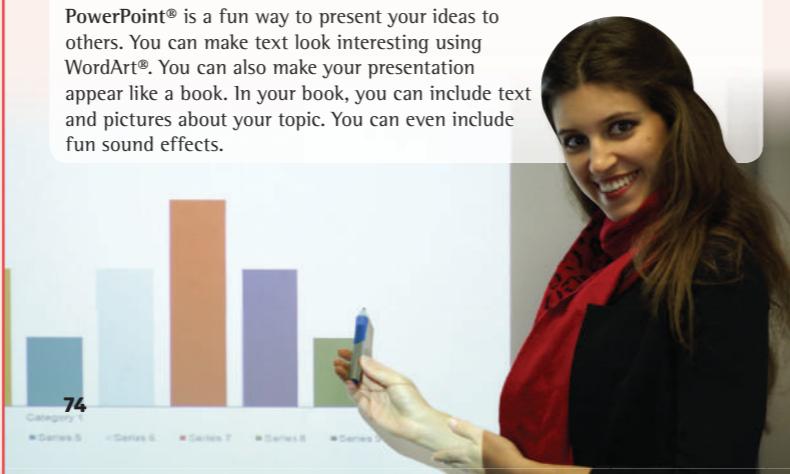
### Learn

Researchers and scientists prepare digital reports about the subject of their studies using various programs like PowerPoint® or video. They sometimes make documentaries and post them on their personal blogs or publish them online in order to spread their findings and benefit people as best they can.

At the end of this theme, you will be asked to prepare a digital report about one of the subjects of your studies. In order to make this digital report you need to do a lot of research first, so that you can present it in a way that suits you.

#### PowerPoint® presentations

PowerPoint® is a fun way to present your ideas to others. You can make text look interesting using WordArt®. You can also make your presentation appear like a book. In your book, you can include text and pictures about your topic. You can even include fun sound effects.



PowerPoint® is a Microsoft® program that creates a slideshow of the material you want to present.

## ENGAGE

**AIM:** To enable students to participate confidently and collaboratively in a class discussion that leads to the objectives of the lesson.

**TIME:** 2–5 minutes

- Follow the steps for **Routine 4: Think-Pair-Share**.

**NOTE:** Listen for ideas that may be difficult or impractical for students to carry out. If necessary, provide guidance in helping students choose ideas that are more focused. You may also want to make sure that each student has chosen a different topic so that there is a range of topics covered by the class.

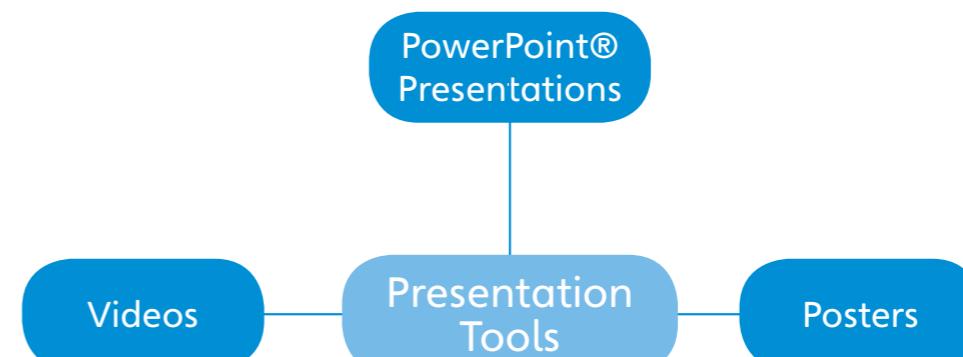
## LEARN

**AIM:** To help students achieve the lesson objectives by organizing the new information they have learned.

**TIME:** 15–20 minutes

- Follow the steps for **Routine 9: Mind-Mapping**.

### Answers:



**OPTIONAL:** Say Now copy the mind map in your notebook or on a piece of paper.

## OBJECTIVES

**AIM:** To engage students' interest in the lesson objectives and content.

**TIME:** 2–3 minutes

- Follow the steps for **Routine 1: Time to Explore!**

**OPTIONAL:** Tell students that in this lesson, they will outline the steps for a research project on a topic of their choice. Encourage them to start thinking now about topics that interest them. Ask [Would anybody like to share about their ideas with the class?](#)

Teaching support for an integrated classroom					
Intellectual disability and slow learning	Autism	Hearing impairment	Learning disability	Motor disability and cerebral palsy	Blind and weak sighted
- Using visual flowcharts based on the continuity and sequence of the practical procedural steps of PowerPoint presentations. - Using pictures and written expressions in the mind maps about PowerPoint presentations.					

#### Videos

You can make your own video to present your research. You don't need film sets or expensive cameras to make a video. You can make one on a laptop, tablet, or cell phone. You can record yourself presenting your ideas. You can interview others, and include them in your video, too. You can also add more details and fun effects with different sounds and images. There is a special video software you can download to help you. Remember to check and make sure an application is safe before you download it.



#### Posters

If you don't have access to a device, you can still present your ideas effectively. One fun, effective way to present your research is by creating a poster. Choose fun colors when writing information. Include art, like drawings, or photos, or cutouts. Always make sure that the text is large enough for others to read from a distance.

Always present your ideas clearly. Also, always remember to credit your sources.

#### Explore

Choose a topic that you studied about this year (all subject areas) that you want to raise awareness about. Use the information you learned in Theme 2 to outline the steps you will take to research your topic safely and effectively. Explain problems that may come up during your research and how you can solve them. Then create a PowerPoint® presentation, video, or poster display to present your information to the class.

#### Review

1. Explain the different ways you can present your research to others.
2. Which software or tools do you need to present research in each way?

#### Self-assess

Go to the Objectives at the beginning of the lesson. Check the correct **I can . . .** box.

75

## EXPLORE

**AIM:** To give students an opportunity to reflect on and, if necessary, refine the topic of their presentation.

**TIME:** 10–12 minutes

1. This task allows students to explore their technological awareness when it comes to giving presentations, and participation when it comes to taking part in research. Read the task aloud and ask students if they have any questions about the project requirements. Then tell students that it's time to choose the topic of their presentation.
2. Create a chart with two columns. (The chart could be on a sheet of paper, on the board, or in a spreadsheet.) In one column, list student names. Leave the other column blank so that students can write the topic of their presentation.
3. Have students write their names and the topic of their presentations on the chart. Review the chart to make sure there is no duplication of topics. (If multiple students present on the same topic, it will likely be dull for the presenters and audience alike.) You may also want to make sure that students have chosen topics that are clearly defined and appropriate in terms of content and difficulty level.
4. Inform students when the chart has been finalized and their topics have been approved. Display the chart in the classroom, as students will probably be interested to see what kinds of presentations their classmates will be doing.

## REVIEW

**AIM:** To check and consolidate the knowledge that students have learned today.

**TIME:** 5–7 minutes

- This task allows students to develop the skill of collaboration by working together with other students. Follow the steps for **Routine 15: Test a Partner**.

## SELF-ASSESS

**AIM:** To help students complete a truthful self-assessment and find the assistance they need to further develop.

**TIME:** 5–7 minutes

- Follow the steps for **Routine 18: Promise!**

## BE THE EXPERT

Crediting sources is an excellent habit for students to develop and will be useful in their future. For academics and professional researchers it is usually a legal requirement to cite sources in their work. Crediting sources is important and useful because it adds value to your own work because it shows that you have done appropriate research on the topic. It also gives credit to the original author for their material, and gives anyone looking at your work additional resources that they can refer to.

## TEACHING TIP

Before preparing for a presentation, many students are curious to see a sample that can guide them. If you have a PowerPoint® presentation from a previous class, share it with students so they can familiarize themselves with its features and capabilities. Similarly, you may also want to share examples of other multimedia projects (videos, posters, etc.) from previous classes.

## HOME-SCHOOL CONNECTION

**Issues and challenges:** Technological awareness  
Encourage students to tell family members about the ideas they have for their project. Family members may have useful input on how to refine or improve their ideas.

## LESSON 8 pp. 76–77

### Learn by doing

#### LIFE SKILLS

**AIM:** To provide guidance on how to plan and prepare for presentation.

**TIME:** 10–15 minutes

##### 1 Think and answer

1. Read the task aloud. Then have students provide written responses to each of the prompts.
2. Form pairs or small groups. Have students share about their projects with group members. Encourage members to give each other feedback, explaining what they like about their project ideas, and how they think the project could be improved. This will develop the important life skill of collaboration.
3. End by encouraging students to take the feedback they got from group members into consideration as they prepare to get started on their projects.

**AIM:** To gather information and conduct research in preparation for class presentation.

**TIME:** 30 minutes

##### 2 Take notes

1. Read the directions aloud. Tell students that this is the stage where they gather information related to their topic. This will help to develop the important value of independence.
2. Provide access to classroom computers, or arrange a visit to your school's library or resource center. You can also direct students to encyclopedias and other resources in print.
3. Give students ample time to conduct their research. Circulate as they work and provide assistance as necessary.

### Learn by doing

## LESSON 8 Practicing what you learned

#### Life skills

##### 1 Think and answer

It's time to do your own online research! First, let's plan.

1. What is the topic you will be researching? Choose one of the ideas below, or choose your own topic.
  - Water shortages in Egypt
  - Littering problems in Egypt
  - How the fast-food industry is affecting the health of Egyptians

2. Why did you choose this topic?

3. Who is your target audience?

4. Which browser(s) and search engine(s) do you plan on using? Remember, think about safety!

5. Choose a teacher or member of your family to help guide you in your search. Write your choice below and explain why you chose this person.

6. Which presentation method do you plan on using? Check. Be sure to consider your method when you are researching your topic.

PowerPoint® presentation



poster



video



##### 2 Take notes

As you research, write notes in your notebook. Be sure you include sources so you can credit them in your presentation.

76

3. Form pairs or small groups. Have group members share their outlines with each other. Encourage them to give each other constructive feedback. Say **If you don't understand a group member's outline, say so. They need your feedback so they can improve the order of their ideas before preparing the presentation.**

**AIM:** To create a presentation using a variety of media.

**TIME:** 60 minutes

##### 4 Create your presentation

Finally, it's time to create your presentation. Check that your information is accurate. Check that there are no spelling or grammar mistakes. Remember to credit your sources and make your presentation informative and interesting. Have fun creating it!

#### ICT and me

##### 5 Think and answer

Congratulations on completing your research! Now share your thoughts on your experience.

1. What did you like most about researching your topic, and why?

\_\_\_\_\_

2. What part of the researching process did you find the most difficult? Did you ask for help, and if so, who did you ask?

\_\_\_\_\_

3. Explain your choice of presentation method. Why did you choose to present your topic using this method?

\_\_\_\_\_

4. Is there anything about the research process that you might do differently next time? Explain why or why not.

\_\_\_\_\_

77

**AIM:** To organize ideas for class presentation into an outline.

**TIME:** 15–20 minutes

##### 3 Complete an outline

1. Read aloud the directions and draw students' attention to the blank outline. Explain that an outline is like a "map" that shows the sequence of ideas in a presentation. Explain that it isn't necessary to create fully developed sentences at this stage. It is OK to use simple words and phrases when filling out an outline.
2. Have students use the blank outline to put their ideas into a logical sequence. Provide writing paper if they need more space to capture all their ideas.

## REVIEW Theme 2 pp. 78–79

### VOCABULARY

**AIM:** To practice and revise keywords from Theme 2.

**TIME:** 5–10 minutes

#### 1 Write and compare

1. Read the task aloud. Then ask students for ideas about the connection between the first two words. Accept reasonable answers and explain that students should write the answer in a full sentence.
2. Form pairs or small groups. Have students work together to write sentences for each of the pairs of words.
3. Check answers as a class and discuss any differences in the sentences that the groups have written.  
(Suggested answers: 1. It is possible to block someone online if you believe that they are bullying you.; 2. When you use a source of information in a project, you should remember to credit the source.; 3. Identity theft and spam are both examples of online problems.)

### REVIEW QUESTIONS

**AIM:** To reflect on lessons learned from Theme 2.

**TIME:** 12–15 minutes

#### 2 Read and answer

1. Read aloud the task. Have students work independently in writing responses to the questions.
2. When students are finished, form pairs or small groups. Encourage group members to share what they wrote and to check their answers. Monitor as students work and make a note of any difficulties that they have.
  - 3. Discuss answers as a class. If students had difficulty with any of the questions, be sure to explain the answers to those.  
(Suggested answers: 1. online encyclopaedias, scientific studies, talking to people; 2. They can be dangerous for a device and cause problems like sending an email to everyone in the address book or deleting files.; 3. You should ask a friend before tagging them in a post or photo.; 4. You can narrow your search to the exact wording if you put the phrase in quotation marks.; 5. A blog may not be a reliable source because they can contain errors and personal opinions.;

## REVIEW Theme 2

### Vocabulary

#### 1 Write and compare

Write a sentence for each set of words to explain the connection between them. Then compare your sentences with a partner.

1. **block** and **bullying**

2. **credit** and **source of information**

3. **identity theft** and **spam**

### Review Questions

#### 2 Read and answer

1. List three sources researchers can use to do research.
2. What do computer viruses do to a device and to the information on the device?
3. What should you do before tagging a friend in a photo or post?
4. Why is it helpful to put a phrase in quotes during an online search?
5. What is one reason a blog may not be a reliable source?
6. What is an example of online bullying?
7. What is hacking?
8. What is PowerPoint®?

78

### Critical Thinking

#### 3 Think and answer

1. Why is the Egyptian Knowledge Bank a reliable source of information?

2. Explain why crediting a source is an example of ethical behavior.

3. How has ICT positively affected your life?

### Essential Question

#### 4 Think and complete

Think about the information that you have learned in this theme. How does it help you to understand how to be safe and use reliable sources when online? Complete the sentence with your own ideas.

After studying this theme, I know that I can be safe and use reliable sources when online because

### Activity

#### 5 Research and create

Create an exhibition about a consumer product that uses ICT that you find interesting.

Find photographs or draw pictures of it. Then make labels and write captions for your photographs and illustrations. Include information about:

- what makes it so interesting
- how it works / how it helps users
- the pros and cons of using such a device on a regular basis
- where you can find / buy / see it

Invite your classmates to visit your exhibition.

79

6. An example of online bullying is unkind messages or texts.; 7. Hacking is when someone accesses your account without permission.; 8. PowerPoint® is a presentation tool. You can use it to include pictures, text and sound effects in a presentation.)

### CRITICAL THINKING

**AIM:** To think about what they have learned and apply their knowledge to a new situation.

**TIME:** 10–12 minutes

#### 3 Think and answer

1. Read aloud the task. Have students work in pairs to discuss and write responses to the questions. Monitor as students work through the questions and support as needed.

2. Check answers as a whole class and discuss any discrepancies in their answers. (Suggested answers: 1.

**The Egyptian Knowledge Bank is a reliable source of information because all the material in the library has been verified.; 2.**

**Crediting sources is an example of ethical behavior because you show everybody who supplied the information.; 3. Students' own answers.)**

### ESSENTIAL QUESTION

**AIM:** To think about what they have learned and apply their knowledge to their own situation.

**TIME:** 5–10 minutes

#### 4 Think and complete

1. Read aloud the task. Discuss students' ideas as a class. Praise all reasonable answers.

2. Ask students to write their own answers and compare their answers in pairs.

### ACTIVITY

**AIM:** To create an exhibition using a variety of media.

**TIME:** 30–45 minutes

#### 5 Research and create

1. Read aloud the directions. Verify that students know how to find the materials they will need to create their exhibitions.

2. Circulate as students work, providing assistance as necessary.

3. When students have finished creating their exhibitions, set aside time for them to invite their classmates to view the exhibition. Encourage classmates to ask questions and give constructive and positive comments.

## PROJECT Term I pp. 80–81

**AIM:** To work collaboratively in a group. To research, gather and organize information. To prepare and give a presentation about digital safety.

**TIME:** 60 minutes

The project is intended to revise and consolidate what students have learned throughout the term. They should be encouraged to work in groups and ensure that each member of the group takes an active role in preparing and delivering the presentation.

For teachers, the project offers an opportunity to assess students' progress on both ICT topics and on collaborative working.

The topic of the project is in the Student's Book, but if preferred, an alternative topic can be chosen from the list below:

- What impact does ICT have on our daily lives? How different would our lives be without it?
- What technological advancements started in Egypt?

### 1 Read the title of the project carefully and think about what you need to find out.

1. Read aloud the task. Ensure that all students understand that they will need to answer the five questions at the top in their presentation.
2. Explain that students will work on the project in small groups, and that the exercises on the pages will guide them through the tasks to plan and give their presentation.

### 2 Put your group together. Who are you working with?

1. Ask students to form groups of four or five people. Ask them to write the names of their group members.
2. Remind students that when they work in a group, all group members should contribute to all parts of the project.

### 3 Brainstorming ideas

1. Ask students to discuss the questions in groups and to write their decisions. If students need more guidance, you can have a short class discussion to help them form ideas for their product. For instance, they could make a report, a PowerPoint® presentation or an exhibition.

## PROJECT Term I

### 1 Read the title of the project carefully and think about what you need to find out.

#### Digital safety

Interview friends, neighbors, family to gather more information on how to safely surf the internet and what to do in case they encounter an unsafe website.

- How can we use the Internet safely?
- How do you use the Internet? How can you be safer online?
- How do your friends and family use the Internet? How can they be safer online?
- What should we do if we encounter an unsafe website?
- What other safety precautions can we take online?

### 2 Put your group together. Who are you working with?

● \_\_\_\_\_ ● \_\_\_\_\_  
● \_\_\_\_\_ ● \_\_\_\_\_

### 3 Brainstorming ideas

What will you product be? What will it look like? What do you need to do?

\_\_\_\_\_  
\_\_\_\_\_

### 4 Gather information

Where will you get your information from?

The school library

What information do you need to know?

\_\_\_\_\_

The Egyptian Knowledge Bank (EKB)

\_\_\_\_\_

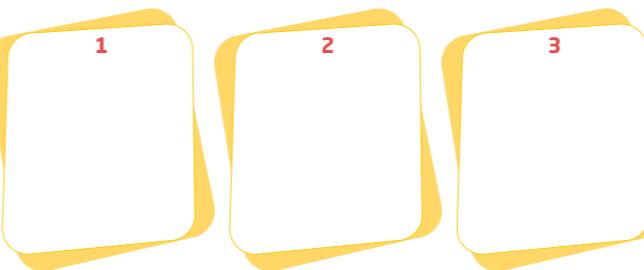
Interview with my family and classmates

\_\_\_\_\_

80

### 5 Our plan

Write down your plan for doing the project. Plan the steps.



### 6 Our final product



### 7 Presenting our work to the class

How can we present the work? What will we say?

\_\_\_\_\_  
\_\_\_\_\_

### 6 Our final product

1. Ask students to work together on their project. Monitor as they work and ensure that all students in each group are contributing.

2. When students have completed their written part of the project, they can take a photo of it, and paste it into the space on this page, or they can draw or write about that they did.

### 7 Presenting our work to the class

1. Ask students to prepare to present their work to the class. Encourage them to divide the speaking roles among the group, and to plan what they will say. They can make notes.
2. Ask each group to present their work to the class.
3. Encourage other students to listen carefully and to ask questions.

## Notes

# Notes

المواصفات الفنية:

مقاس الكتاب: ٢٧ × ١٩ سم  
طبع المتن: ٤ ألوان  
طبع الغلاف: ٤ ألوان  
ورق المتن: ٧٠ جرام كوشيه  
ورق الغلاف: ١٨٠ جرام كوشيه  
عدد الصفحات بالغلاف: ١٥٦ صفحة

طبع المتن: ٤ ألوان  
طبع الغلاف: ٤ ألوان  
ورق المتن: ٧٠ جرام كوشيه  
ورق الغلاف: ١٨٠ جرام كوشيه  
عدد الصفحات بالغلاف: ١٥٦ صفحة



Egyptian Knowledge Bank  
بنك المعرفة المصري



### Information and Communication Technology

Author: Jennifer McAliney

CCIMD team:

أ.د. نوال محمد شلبي، د. طاهر عبد الحميد العدلي،  
د. منال زيادة عبد الفضيل

Directors: Erik Gundersen, Esmeralda Tohme

Program Director: Sharon Jervis

Egypt Program Manager: Tom Kelley

Project Manager: Nairy Tahmajian

Commissioning Editor: Suzette Pettit

Editorial Consultant: Sian Mavor

Editorial Manager: Claire Merchant

Heads of Production: Celia Jones, Charbel Ephrem

Heads of Design: Celia Jones, Bernard Youssef

Senior Content Project Manager: Phillipa Davidson-  
Blake

Cover Designer: Jonathan Bargus Ltd

Media Research Manager: Rebecca Ray

Operations Support: Hayley Chwazik-Gee,  
Katie Lee, Rebecca Barbush

#### Expert Advisors:

Benjamin Brown - Educational Technology  
Instructional Coach Tacoma Public Schools  
(Washington State, USA)

Dr. Fredrik Hiebert  
Archaeologist-in-Residence, National Geographic Society

The publisher has made every effort to trace and  
contact copyright holders before publication. If any  
have been inadvertently overlooked, the publisher  
will be pleased to rectify any errors or omissions at  
the earliest opportunity.

#### Acknowledgments:

Cover Anton Balazh/Shutterstock.com

Pp1AntonBalazh/Shutterstock,8-9Erik Jepsen;10BenHorton/NationalGeographicImageCollection;11(t)DarrenLingard(D'AvilaIllustrationAgency);  
11(m)DarrenLingard(D'AvilaIllustrationAgency);11(b)Liwang/Xinhua/AlamyStockPhoto;14(b)ScienceHistoryImages/AlamyStockPhoto;14(t)Gianni  
DagliOrti/Shutterstock;15(b)KonstantinShaklein/AlamyStockPhoto;15(t)PictorialPressLtd/AlamyStockPhoto;18MotortionFilms/Shutterstock;20  
BuddyMays/AlamyStockPhoto;22Wachiwit/Shutterstock;23(boy)Watcartoon/Shutterstock;23(CPU)ShadeDesign/Shutterstock;23(keyboard)  
GravityDesign/Shutterstock;23(screen)GravityDesign/Shutterstock;24(a)SydaProductions/Shutterstock;24(b)SarivArt/Shutterstock;24(c)  
SupatchaPornmeesuk/Shutterstock;24(d)fullvector/Shutterstock;25Jvphoto/AlamyStockPhoto;26NationalGeographicPartners;27(tl)Sensay/  
Shutterstock;27(tr)Garagestock/Shutterstock;27(cr)Fizkes/Shutterstock;27(cl)Gorodenkoff/Shutterstock;28(ball)Topseller/Shutterstock;  
28(car)MichaeldeNysschen/Shutterstock;28(computer)JuliaNikitina/Shutterstock;28(elevator)HeikeKelm/EyeEm/GettyImages;28(glasses)  
RobWilson/Shutterstock;28(light,pen)OleJohny/Shutterstock;28(phone)AlexeyBolдин/Shutterstock;28(printer)AlekseyMnogosmislav/  
Shutterstock;29JasonBye/AlamyStockPhoto;30Selinofoto/Shutterstock;31(b)JWinter/Shutterstock;31(t)CreativeAngela/Shutterstock;34  
CourtesyAlbertLin;38NationalGeographicPartners;39TwinDesign/Shutterstock;44-45CourtesyofAnikaUllah;46SydaProductions/Shutterstock;  
47AnikaUllah;49OrhanCam/Shutterstock;50(b)Westend61/GettyImages;50(blockicon)MartialRed/Shutterstock;51TwoMine/Shutterstock;  
52(Amir)Juanmonino/GettyImages;52(Malak)BOKane/AlamyStockPhoto;52(Rami)MazenSiraj/EyeEm/GettyImages;52(unknown)  
DMEPhotography/GettyImages;52(Younis)ArtDirectors&TRIP/AlamyStockPhoto;54YAKOBCHUKVIACHESLAV/Shutterstock;55Andrew  
Angelov/Shutterstock;56StephenSimpson/Stone/GettyImages;58JGI/TomGrilly/GettyImages;59Ankudi/Shutterstock;60SipaUS/Alamy  
StockPhoto;60-61(searchicon)4zvar/Shutterstock;61(b)VictoriaRay/Shutterstock;61(t)ZharinovaMarina/Shutterstock;62MarceldeGrijjs/  
AlamyStockPhoto;66NewAfrica/Shutterstock;67MotortionFilms/Shutterstock;69Restimage/Shutterstock;70Matkub2499/Shutterstock;71  
TeroVesalainen/GettyImages;72SuppachokN/Shutterstock;74Whiteway/ISTock/GettyImages;75Funstock/Shutterstock;80(brainstorming  
icon)GularSamadova/Shutterstock;80(gatherinformationicon)SurfsUp/Shutterstock;81(Presentingicon)Shutterstock

© 2022 Cengage Learning, Inc. and Sphinx Publishing Company S.A.E

ALL RIGHTS RESERVED. No part of this work covered by the copyright  
herein may be reproduced or distributed in any form or by any means,  
except as permitted by U.S. copyright law, without the prior written  
permission of the copyright owner.

"National Geographic", "National Geographic Society" and the Yellow  
Border Design are registered trademarks of the National Geographic  
Society.

For permission to use material from this text or product,  
submit all requests online at [cengage.com/permissions](http://cengage.com/permissions)

Further permissions questions can be emailed to  
[permissionrequest@cengage.com](mailto:permissionrequest@cengage.com)

Teacher Edition: Level 4

ISBN: 978-977-415-156-9

#### Sphinx Publishing Co.

3, Shawarby Str, Apt 305,  
Cairo, Egypt  
+ 20 223 924 616  
+ 20 223 918 002

#### National Geographic Learning

CheritonHouse, North Way,  
Andover, Hampshire, SP10 5BE  
United Kingdom

Locate your local office at [international.cengage.com/region](http://international.cengage.com/region)

Visit National Geographic Learning online at [ELTNGL.com](http://ELTNGL.com)

Visit our corporate website at [www.cengage.com](http://www.cengage.com)

Printed in

Print Number: 01 Print Year: